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SANTA SUSANA FIELD LABORATORY
ROCKETDYNE WORKGROUP MEETING
FEBRUARY 5, 2003

Meeting held Wednesday, February 5, 2003, from 5:30 p.m. to 10:33 p.m., at the Grand Vista Hotel, Grand Ballroom, 999 Enchanted Way, Simi Valley, California, before Christina Morales, Certified Shorthand Reporter, Certificate No. 12516.

VICKI ROSEN: Good evening everybody. Thank you very much for coming tonight. My name is Vicki Rosen. I work for the U.S. Environmental Protection Agency, the EPA, Region 9, in San Francisco. My job there is community involvement coordinator in the Superfund Program. This is not a Superfund site that we're dealing with here.

I'll tell you what that means. A community involvement coordinator works with communities that are affected by contamination. I'm the liaison between the technical people and the communities to help make them part of the decision-making process, the clean-up process. We work very closely with the communities. I've worked with very many communities throughout Region 9. It's not a PR job. We have other people at EPA who do that kind of work.

We firmly believe in two-way communication as being best overall for what we're trying to accomplish, and that is protection of human health in the environment. Now, my role at this meeting is to facilitate the Workgroup meetings, and that's what I'll be doing tonight. For those of you who might be new to this process, I'll tell you a little bit about the Workgroup and what it is and what the purpose of the Workgroup is.

The Workgroup is a forum by which the regulatory agencies are able to communicate and discuss various regulatory activities in connection with the Rocketdyne site. We coordinate the activities. And we coordinate not only amongst ourselves, but also representatives of the community. Another purpose of the Workgroup is to make it a public forum so that the community at large can come and hear the Workgroup proceeding; they can ask

questions of the Workgroup; they can give us input and ultimately lead to the best cleanup that we can do here. So that's pretty much a summary of what the Workgroup is all about.

Now, normally these meetings occur on a quarterly basis; that's been the usual time frame. We lost a little time a while ago, so we've had them a little bit more frequently right now. But we'll probably go back to our generally quarterly schedule. And they've been going on for quite a long time. So, in that regard, I need to explain to those of you who aren't used to coming to these meetings that they are not really like a typical public meeting.

Public meetings are designed primarily for the people in the audience; everything is geared toward presentations for the audience. Here, although of course that is one of the responsibilities of the

Workgroup, it's also a working group that is talking amongst ourselves and sharing information with each other as well as with the public. So there may be things that we've talked about for a long time that you might not understand right away.

I will say that we will try to make the conversation as easy to understand as we can. But these subjects are by their very nature rather confusing and rather technical, so we'll do the best we can. Please don't hesitate to ask questions. I will request, however, that you keep your questions until the public question-and-answer session that follows basically each presentation segment.

However, if we're talking about something and we use a term that you don't understand or an acronym that you don't understand, please raise your hand; I'll call on you; we'll clarify it so that you understand what we're talking about. But just in general, please wait until the end of each presentation for the public Q and

A to ask your questions.

Now, also, the agenda -- if you look at the agenda, it's really full. It seems to always by very full. We really want to get through everything on the agenda. We think that there are very interesting topics that you'll want to hear about, so we're going to keep

to the schedule. That also means that we are going to end this meeting at 10:00 p.m. We've also been told by the hotel that we need to vacate this room at 10:00 p.m.

So with that in mind, I'll ask your cooperation in keeping to the schedule. We think that we've left plenty of time for discussion. We hope that's the case. However, if you feel that you need to continue talking about an issue following the meeting, I'm sure that there will be some of the folks here at the table who will hang around out in the hallway afterwards and we'll be glad to talk to you additionally.

Also, if there's subjects that you would like to discuss that are not on this agenda that we don't have time to fully explore at the end of the meeting, which is the time where we have a general Q and A session, maybe we'll be able to address that issue at a subsequent meeting. So just let us hear from you on that and we'll try to accommodate you.

I'll just make sure that I've covered everything here. I've already asked you to please hold your questions until after each presentation. We're going to keep to the schedule. Let me just give a few basic ground rules, just really simple stuff: Hold your questions until after the presentation. I'm going to also ask for common courtesy from everybody in the

room -- from the people at the tables and from you folks out there.

Sometimes we're going to disagree on issues. There's often some contentious opinions here. Let's please, if we're going to disagree with each other, let's do so respectfully -- so just common courtesy. Also, if only one person can please speak at a time that would be great. These proceedings are being captured by our court reporter, Christina, and the transcripts will be available in the repositories.

If you know people who weren't able to come tonight and would like to read what occurred at the meeting, there's a list of repositories outside and they can pick up a transcript for themselves. So, please, speak one at a time and clearly. Also, issues that don't fit into the specific topic that we're discussing, we can take them to another time. And when you come up and ask questions following the presentation, if you could keep your questions related to that presentation that would be great. And then we have time at the end for anything.

With that said, I think I've covered everything. I would like to ask the people at the table to introduce themselves and say who they work for and what they do, and then we'll get started.

Gregg, we'll start with you.

GREGG DEMPSEY: My name is Gregg Dempsey, and I'm with the EPA lab is Las Vegas. I'm providing Region 9 and the Workgroup with radiation advice, as necessary.

STEVE HSU: My name is Steve Hsu, and I'm with California Department of Health Services Radiologic Health Branch. I'm involved with the side cleanup.

ROBERT GREGER: I'm Robert Greger. I'm with the Department of Health Services Radiologic Health Branch, also. Both Steve and my and some of our staff's

involvement in this site is from the standpoint of this site being turned over eventually after DOE cleans it up and releases it in terms of property back to Boeing, and Boeing would be a California licensee. So our interest is ensuring that at that point in time we know what the radiological significance is of this site.

SHELDON PLOTKIN: My name is Shel Plotkin, and I'm with the Rocketdyne Cleanup Coalition -- one of the community representatives. Also I'm with Southern California Federation of Scientists.

JERRY RASKIN: I'm Jerry Raskin with the Rocketdyne Coalition. First, I want to commend anybody who put this together. I think it's very good. And let's go on from there.

ARLENE KABEI: My name is Arlene Kabei. I'm with

the EPA Region 9 San Francisco office, the associate director for the Waste Management Division.

LARRY BOWERMAN: My name is Larry Bowerman, and I'm with EPA Region 9 from the San Francisco office. I'm the manager of the Workgroup Corrective Action Office.

JOHN BEACH: I'm John Beach, and I'm also with Region 9 in San Francisco, U.S. EPA. I'm the project officer for the SSFL project.

DAN HIRSCH: I'm Dan Hirsch, president of the Community to Bridge the Gap. I'm one of the community representatives on the panel.

BARBARA JOHNSON: I'm Barbara Johnson, one of the community representatives, and with Rocketdyne Cleanup Coalition.

MIKE BROWN: Good evening. I'm Mike Brown. I work for the DOE Oakland operations office and I'm with the Oakland Environmental Programs Division, which is responsible for the ETEC clean up.

MARY GROSS: Hi. I'm Mary Gross, and I'm also from the Oakland Environmental Programs Division. I'm the deputy division director.

MIKE LOPEZ: I'm Mike Lopez, and I'm the DOE environmental restoration project manager.

ROGER GEE: Good evening. I'm Roger Gee, and I'm with the Department of Energy in Oakland.

RICK MOSS: I'm Rick Moss. I'm with the Department of Toxic Substances Control.

PAULINE BATARSEH: Pauline Batarseh, and I'm a supervising engineer with Department of Toxic Substances Control. We are in charge of the cleanup of the chemical contamination at Santa Susana Field Lab.

GERARD ABRAMS: Good evening. My name is Gerard Abrams, and I'm a geologist with the Department of Toxics. I'm a project manager for corrective action at the Santa Susana Field Lab.

RICHARD MC JUNKIN: And my name is Richard McJunkin. I'm a hydrogeologist with the Department of Toxics, and I in the past provided soil and groundwater characterization at Santa Susana.

VICKI ROSEN: Okay. Thank you all.

I'd like to ask if there are any elected officials in the audience or representatives for elected officials.

Yes, ma'am.

SPEAKER: Laura Plotkin here (inaudible).

VICKI ROSEN: Thank you, Laura. Anyone else?

SPEAKER: (Inaudible.)

VICKI ROSEN: Okay. Thank you. With that, we are only three minutes late. So I think we're doing okay. We're going to have some very brief updates from the

agencies before we get into the more detailed presentations.

We'll go ahead and start with Gerard Abrams from Cal EPA/DTSC.

GERARD ABRAMS: Good evening. Yeah, we've got a couple of activities that are coming up in the next couple of weeks. One of the main activities we have going on is following up on some of the sampling work that we conducted on the north side of Santa Susana Field Lab, and that was collecting samples down in Simi Valley and in the drainages.

We plan on stepping out around the east side in the drainage below Happy Valley area where there's some perchlorate detections and collect samples down in that drainage, as well as stepping down into the Chatsworth area identifying some wells down in that area and follow up on some of the work we started over in Simi Valley.

VICKI ROSEN: Okay. Then I think we're going to next go to Rob Greger from the Department of Health Services.

Thank you, Gerard, by the way.

ROBERT GREGER: Good evening. The Department of Health Services Radiologic Health Branch has followed up on an issue that came up at the last public meeting with respect to sampling of wells in the Ahmanson Ranch area

for radioactivity. We have been in contact with the Water Board over that issue, and at the present time, we've made arrangements to do sampling when the Water Board can arrange for that to be done. And we do not have that schedule yet, but we do expect it to occur within the next month or so.

The only other activity that I believe we participated in is we did have a meeting with our licensee, Boeing, to talk about some issues related to their activities -- primarily, I guess the use of the MARSSIM methodology for any site surveys, soil surveys

in area 4. That's it.

VICKI ROSEN: Okay. Thank you, Rob.

Next is Roger Gee from the Department of Energy.

ROGER GEE: Hi. Good evening. I have three items to brief you on -- two are updates and one is a new item. On the draft of Environmental Assessment, at the last meeting we were waiting on our Department of Energy headquarters on the decision on the draft of the Environmental Assessment. I also mentioned at the last meeting of a newly formed focus team that was set up to get the needed attention for the small sites, and ETEC is among that group.

The focus team is completing its visits to all the small sites across the country. There will be a

programmatic review at the assistant secretary level on the Small Closure Sites Conference toward the end of February. And we believe and we're hopeful that they will have a NEPA, which is a National Environmental Policy Act decision on the draft of Environmental Assessment at that time. So we're hopeful.

The second item of update is the FY03 and FY04 budget. When we last met, Congress had not approved the '03 budget, and we're operating under funding by continuing resolution. This resolution allows the government to continue operating until Congress passes a budget. Believe it or not, we're still under that continuing resolution now.

However, our budget plan for the current year remains at about 17 million. And for '04, we can see from the President's budget that '04 will be slightly higher than our planned 17 million. We'll probably have around an 18-million dollar mark for FY04. And if a picture is worth a thousand words, I think I can be more brief if I can show you some pictures on our last item.

DAN HIRSCH: Excuse me. I'm perplexed a moment. I thought that we were supposed to give all this two weeks

in advance.
VICKI ROSEN: Roger, is this something that should have been distributed early on?

ROGER GEE: This particular issue has been ongoing, and I'll let him get back to it. I'd like to make a presentation and I think I will address your concern.
DAN HIRSCH: Well, Roger, there is concern. We have a rule here so that we're not surprised by these presentations.
VICKI ROSEN: Okay. Let me explain to the audience what's going on here. The folks on the Workgroup like to share the information that's going to be presented at these meetings in advance so that we're prepared for what's going to be discussed and, if necessary, we have any kind of documentation we need to better discuss these issues.
This has not been the case with Roger, right here. It is my feeling at this point that we should go ahead and let Roger present the materials. And then if in looking at these materials, Roger, if we feel that you should have shared these with us in advance, it would be nice to have you just plan better so that you're under the same rules as everybody else. I'd like to just get approval from my colleagues here, if that would be all right if we continue at this time.
MIKE BROWN: Vicki, I'd just like to add that we would have sent this out, but it was literally a last minute decision. We thought it might be helpful to

present this material, and we didn't have the

opportunity to get it out. But we do feel that this -- you know, this enhances the information that Roger is providing verbally.

VICKI ROSEN: Okay. And what I would like to say is that that's fine. I'm making the judgment that I think Roger should present it. In the future I would like you to try to think of these things in advance. That's why we developed that rule. And if anybody has any comments about what Roger is going to present, then please let's -- we'll get those out in one fashion or another. If it's not today, then we'll do that at the next meeting.

DAN HIRSCH: Just for the record, I want to make it clear that I object. The whole purpose of this is so that the government doesn't hide the ball. We've had a history over a decade of material being presented at the last moment so that we don't have a chance to review it. And if the government can't obey the rules that we're asked to comply with, I don't know how we'll be able to obey the rules we're trying to do with general cleanup.

VICKI ROSEN: Arlene, go ahead.

ARLENE KABEI: Dan, at the last Workgroup meeting we did not have the benefit of Dr. Tabidian's presentation as well, and we afforded some flexibility

in that case. And I think in this case -- I don't like it either; I don't like it -- but I think, at least on this one occasion, we're going to exercise some flexibility here as well.

DAN HIRSCH: I just have to respond to that. The rules regarding Dr. Tabidian were -- let's just get this clear -- he was responding to the presentation to be made by DTSC. DTSC did not get its materials in time. And, therefore, our rule was that Dr. Tabidian didn't need to get --

SHELDON PLOTKIN: I would object to what Mr. Hirsh just said. He did get the materials on time.

DAN HIRSCH: That's not case.
SHELDON PLOTKIN: I want to make it absolutely clear that he did --
DAN HIRSH: (Inaudible.)
SHELDON PLOTKIN: (Inaudible.)
VICKI ROSEN: Folks, for the benefit of the people sitting our there, I want this bickering to stop. I understand where everybody's coming from on this, but for the benefit of the people out there, it's going to stop right now.
Roger, please make it quick, and you understand what this costs.
SHELDON PLOTKIN: Just a minute. It's important

that the people know that this kind of discussion has been going on for 13 years. This isn't something new. We started this 13 years ago that we started doing this kind of bickering and having this kind of argument.
VICKI ROSEN: Then it's time to stop, Shel. Go ahead.
ROGER GEE: This is our last operating facility. And for a long time, in very deep and robust vaults, we've had transuranic waste stored there. And they have already been packed away in drums. Recently we had a rare opportunity to move this material. And as part of that process we went to great lengths to do a lot of practicing, moving these drums around to make sure that the operations would go smoothly. And, in fact, they practiced with plywood (inaudible). This is a photo of the actual loading operation.
What we did was we enlist the use of two casts, which are basically highly developed shielded containers to store those drums that you saw in the deep vault. One is from DuraTech; it's a commercial cast available to different companies. And we also borrowed one from the United States Navy; it's a brand new cast that they have never even used themselves to transport the

transuranic waste. Here we are, and we actually have
everything loaded.

And part of the reason we didn't have a lot of information to share with you was that we've been in communication with the Governor's office, with the offices of Emergency Services, with the California Highway Patrol, and we respect -- because we work with different states, we defer to the states in terms of public notification and information about these shipments.

And as you all know, with the events of 9-11 and terrorism and issues like that that are prevalent now, we were asked not to disseminate a lot of this information. And it was their call -- the State of California Governor's office and the offices of Emergency Services -- to withhold this information. So I do apologize for not getting this out sooner. But I hope you understand this predicament we were in.

It's not like we don't want to share this because this is absolutely a good-news story for all of us. We had the Western Governments Association, so it wasn't just for California, Oregon, and Washington. We had our own van here that had emergency response to escort this thing through. It was tracked by satellite and by radio the whole journey through.

And the best news of all is that this transuranic waste, which we safely stored here, is much,

much better thousands of miles away. And this is a picture of the shipment arriving in Hanford, Washington.

It's ultimately -- this material will be destined for a waste isolation plant commonly referred to as WIPP in New Mexico. Everything went very smooth.

We had very positive support from the Governor's office, California Highway Patrol, offices of Emergency Services. And the reason I say it's good news is because the bottom line is this waste is no longer here at ETEC. It's good for ETEC; it's good for the community. Thank you. And, again, I apologize deeply for not having this information out sooner.

VICKI ROSEN: Thank you, Roger.

We're going to let John give his presentation and then we can discuss this. John Beach at U.S. EPA.

JOHN BEACH: My story is not nearly so exciting. Most of our time has been taken up with Workgroup meetings -- finishing up the loose ends from the last meeting in December; preparing for this meeting, and there was quite a bit of that; and there was some preparation for the next one. So that's it for us.

VICKI ROSEN: Now, one thing that I -- thank you, John -- I forgot to say in the beginning was that the procedure we follow is we have the presentation first and then the Workgroup gets to comment and discuss among

ourselves whatever we want to about this presentation; and then we open it up to the public. We do have a public question-and-answer session following that.

And now we can open it up to the Workgroup to anybody who would like to comment on any of the brief summaries that were just presented.

DAN HIRSCH: Just a very brief comment, since I want us to deal with the agenda. I just wish that the Department of Energy were quite as willing to show us photos and give us information about the 7,000 tons of radioactive debris that was taken from the site -- not to Hanford, but dumped at the Bradley landfill -- about the radioactive metals taken to the metal recycler in

San Pedro where it was melted down into consumer products; and about the other radioactive waste that's been dumped at Sunshine Canyon and Calabasas. It would be nice if we had relatively full disclosure about these waste disposal practices.

VICKI ROSEN: Thank you, Dan. Anyone else?

Okay. Do we have any members of the public who would like to ask questions? Please go to the microphone. The reason we're having you do that is so the court reporter can hear you and we all can hear you. Thank you.

SPEAKER: My name is Stanford Levin, and I've lived

in Simi for over ten years. I grew up on the other side of the valley there near Rocketdyne. First of all, are there any representatives here from the City of Simi? Don't bite the hand that feeds you, I guess.

Oh, there's one. And you are?

SPEAKER: My name is Laura Reynolds and (inaudible).

SPEAKER: Okay. I attended the last meeting from the first meeting. And, Ms. Rosen, as far as being the mediator of that meeting -- I've been in business for over 20 years, and currently I'm a disabled person because of my illnesses -- I've never ever seen such a disorganized chaotic meeting as the last one. Hopefully this one will be much better.

What I mean by that is -- and I'll give you a couple of examples here. One, Mr. Gerard -- and I can't see your last name from here -- but he, for example, had plenty of time before the meeting to have his information together to disseminate and share. We were all ready to see that information, and he at the time said, "Oh, I'm not ready." You asked the public -- which pays your salary along with everybody else's here at this table, except for the private citizens up there -- and you asked him, "Do you want to take a

25 five-minute break?"

As far as I know, this is still a democracy; and everyone in this group said absolutely positively no. And what happened? Instead of the five-minute break, we got a 15-minute break which put everything over the top and over the limit. And then the public couldn't come back and rebut a lot of the things that were said. So I don't want to be cruel, but if I was the manager or the boss of any of you, I think it's pink slip time.

Anyhow, I want to do what CNN does, and I think CNN is one of the most respected news organizations in the country. I also work with the Los Angeles Times, by the way. CNN does a nonscientific poll every once in a while when they have a subject of interest to the public. Okay? And they make disclaimers saying that it is a nonscientific poll -- and I'm going make this very brief. This is a nonscientific poll and you can either call or e-mail your information in. Okay?

I have one question -- actually, I have two questions. First of all, why -- and I open this up to anybody at the tables -- why doesn't the UCLA study include thyroid problems, not just cancer?

VICKI ROSEN: Is there anyone here who can answer that question?

Yes, ma'am.

SPEAKER: My name is Marissa (inaudible) and I'm

from UCLA.

SPEAKER: Microphone, please.

VICKI ROSEN: Can you come to the microphone,

please?
SPEAKER: Sure.
SPEAKER: And I have another follow-up question after that.
VICKI ROSEN: Okay. We're running a little --
SPEAKER: I'll be short.
VICKI ROSEN: Okay.
SPEAKER: Hi. Can you hear me?
My name is Marissa (inaudible) and I'm one of the new project coordinators for the UCLA study. This is my first time being at one of the Workgroup meetings. I just got put on this study. And just to answer your question, we actually have a website and I'm not sure if everybody has visited that. But there are different investigators from different departments within UCLA that are investigating this. And their are e-mails actually on that site from the inquiries that people might have about what's going on with the exact specifics of this study.
So I encourage anyone here who has questions about how that study is being -- you know, the progression of the study and what's going on with that.

So definitely visit the website. And there's contact information on there so you can e-mail, and I'm sure they will respond. And our information will be on there to ensure that there is a response on that.
But I wouldn't be able to give you specifics about exactly what the study is. I actually don't have that information, but I would love to share that with you. We're going to be setting up a meeting in about a couple of months for the investigators to come and give us a progress report on what's been going on so far with that.
VICKI ROSEN: Thank you.
SPEAKER: What is that website address?
SPEAKER: You know, we have fliers available to

pass out. There are some outside on the tables available for everyone.

SPEAKER: They are the half-sheet blue papers.

VICKI ROSEN: Okay. Now, I have to remind people, as I said earlier, when you come up to ask your questions or to make comments, we want them to be related to what preceded it. We have time at the end for all kinds of miscellaneous questions.

So does your next question deal with one of the reports that was just presented?

SPEAKER: Yes, in general. She actually didn't

answer the question that I had, but we'll proceed and hopefully she will in the future.

What I want to do is do a nonscientific test. First of all, by show of hands, how many people in this room right now either know someone -- this is the only question I have, and I've waited a long time to ask it -- either know someone, family or friends, that are either ill with thyroid problems or cancer or illnesses that the doctors don't seem to have the answers to? Just by a show of hands, I'd like to know that. Okay. There's quite a few.

What I'd like to do -- and then I'm done -- is pass this tablet along, and just put your name and phone number on it. I will personally contact you to add you to an independent item that we're doing that will be sent out of state and out of the area to two independent universities for study, other than the DOE and you folks at the table.

Thank you.

VICKI ROSEN: Thank you.

Okay. We're going to try and catch up here. We're already past the time.

SPEAKER: Just a quick question for clarification, if you don't mind.

VICKI ROSEN: Sure.

SPEAKER: Madeline Stockter.
Sir, I cannot read the name tags at all. Somebody made a mention of an acronym; it sounded military to me -- WHIP. Is that Waste Hazardous Isolation Plant? Please clarify that for me.
ROGER GEE: No. It's Waste Isolation Pilot Plant, and that's in New Mexico.
SPEAKER: Okay. I got that part, but I wanted to make sure what the acronym was representing.
ROGER GEE: And the Department of Defense was mentioned because we borrowed -- the Department of the Navy had a brand new cast that they allowed us to --
SPEAKER: That's all right, sir. I heard the Department of Defense, but what I didn't here was what the acronym stood for. It did sound military.
And I literally cannot read a lot of the names. So if you could say your names when you first introduce your matter, I would really appreciate it. I can read Vicki Rosen's, and I know Barbara Johnson and Dan Hirsch. But I can't read anybody else's, and I really need to hear the names.
VICKI ROSEN: Okay. Well, we'll try to remember to announce who we are. Thank you.
SPEAKER: Thank you so much.
VICKI ROSEN: And we're already running behind, so

we're going to catch up. Dan you're up next.
Dan's going to discuss some issues that, if you were here at the December 5th meeting, you'll be familiar with these issues. He has some comments to make on those.

Go ahead, Dan.

DAN HIRSCH: Thank you.

First of all, I want to just try to get the mood back, and I apologize for having gotten it off to a bad start. So you understand why we have struggled, most recently in the last few months, to try to provide a mechanism whereby data are provided in advance so that these meetings can be useful for everyone. This is a matter we've struggled with for some years, and I'm caught by surprise that we're still not there. It's very frustrating.

I was unable to be here for your last meeting in December, so the Workgroup has kindly provided me with a little bit of time to try to respond to three or four key items that were raised in that December meeting that I thought you should here some responses to. And we're also going to do that a little bit in the perchlorate section that's coming up next.

But let me first deal with some issues that are unrelated to perchlorate. And so I know whose here, how

many of you were here -- was either the December meeting or this meeting your first meeting?

Okay. So just a word of introduction as to who I am, I am one of the five community representatives on this Workgroup. The local legislatures tried to create a situation where you wouldn't have simply agency people present, but there would be some independent voices, most of whom have some technical background.

My own background is that I was the director of the Stevenson Program on Nuclear Policy at the University of California; in Santa Cruz as an energy and environmentalist follow-up to the Federation of Scientists; and before all that I taught at UCLA in 1979. Some students of mine uncovered some of the documents that detailed the partial meltdown of the reactor up at the site back in 1959. So I've been

involved in dealing with this site for close to a quarter of a century.

There are four key items I just want to respond to quickly from the previous meeting. The first has to do with the Department of Energy and its discussion of what's called an Environmental Assessment. This is a document that is trying supposedly to assess the environmental impacts of cleaning up the site and what the alternatives are.

Senator Boxer and others have urged that an Environmental Impact Statement be done, which is a detailed and thorough document. And so far, the Department of Energy has resisted doing that, instead doing a very much more minimal document called an Environmental Assessment.

Their proposal in that EA is to not clean up approximately 98 percent of the soil that the document itself concedes is contaminated with radioactivity, to leave that behind at the property and then to release the site for unrestricted residential use. Which means that children can be growing up and playing on top of the site of a former meltdown where there are still measurable and risky radioactivity.

They considered a second option in that Environmental Assessment which was to clean up to the strictest EPA standard, which is something that has been promised to this community for years and years and years. And that EA proposes rejecting that commitment, to breaking that promise, and basically moving forward by leaving the contamination up there.

It would affect not just the people who lived on the mountain, if they ever do convert it to residential use, but it would affect anyone who is below because the potential that rainfall could cause some of it to

migrate, which we'll discuss later, or the wind could cause it to blow or the groundwater could migrate. So it's a very significant matter. It's very troubling that the Department continues to refuse to do an Environmental Impact Statement. It's very troubling that they continue to propose to have as their option of cleanup, the one that violates the promise, a commitment to use the strictest EPA standard.

Secondly, I want to discuss what the EPA presented regarding the cleanup. Many of us who have been fighting this for a long time have two real goals regarding the radioactivity that's still at the site. The first, as I mentioned, is to have the cleanup to at least the strictest EPA standards.

The second is to have a thorough independent radiation survey -- that was promised to have been done by Mr. Dempsey years and years ago -- to check the site independently, the soil at the site in particular, to check it for the EPA cleanup standards to find out how much is there. One issue is how much cleanup and what you know; the second issue is finding the stuff that's there. There's been very minimal survey, widely criticized by EPA and others, of the great activity in the soil. And I'm troubled that that promise has also been broken.

EPA and DOE committed to Senator Feinstein and others that that survey, the actual measurements, would be being conducted beginning several years ago. It still hasn't happened. And at the last meeting, EPA said that what it's proposing to do, at least at the outset, instead of the actual measurements, is what they

called a Historical Site Assessment, an HSA, which is essentially a paper review -- looking at Rocketdyne's own self-serving documents. Rocketdyne's documents always say that they never released anything. It's just a self-serving document.

A paper review is not what the community asked for; it's not what the community was promised. And I know the EPA says it's a first step. But if you look at EPA's own documents about what they promised, they have promised that there was going to be real measurements and those measurements were going to occur very, very quickly.

It is my concern and my belief that there was an effort to make sure there is never that independent survey; and that instead the facilities will be released for unrestricted use based on the review of what documents Rocketdyne has not destroyed and what documents Rocketdyne has that are self-serving. And I'm very troubled by that, and I hope that that will be

reversed.

Next, if I could please get some assistance, I duplicated 50 of these so I'm going to need some help from you to broadcast them and for two people to help me pass these out. And if you can share them, I would appreciate it. The panel got these several weeks ago. This is one document and this is another one. And I'm sorry that these are numbered, and I'm sorry that it's going to be hard to see. We don't have some of the fancy technology that some of the agencies have.

VICKI ROSEN: Dan, I just want you to be cognizant of time because we're going to go into the perchlorate time frame. I want to be able to cover everything.

DAN HIRSCH: I have this and then I have one very brief thing thereafter.

VICKI ROSEN: Okay.

DAN HIRSCH: At the last meeting in December,

several representatives of elected officials continued to try to ask EPA to make clear that the EPA standards differ from the Department of Energy's standards and by how much, with a serious dispute about health and safety. And as I read the transcript and as I heard from many of you who there, you came away confused as to whether the fact EPA standards would mean anything different for the cleanup of this site.

And we're not going to discuss this at any length today, but at our very next meeting there's going to be a major presentation by the person from EPA headquarters responsible for these cleanup standards. But I just wanted to point out to you the magnitude of the difference -- and I'm not very good with the audiovisual stuff, so let me try this.

These are radionuclides, different kinds of radioactive materials. This is the cleanup standard that DOE, Rocketdyne, and the State Health Department have approved each radionuclide at Rocketdyne.

JOHN BEACH: Excuse me, Dan. Your radionuclides are off the screen.

DAN HIRSCH: Well, let me see what I can do here.

Thanks, John.

That is what's called PRG, the Preliminary Remediation Guide Values for EPA. You can find them on the web. I've used the most recent ones, which are as of September of 2002. And just so you can see the comparison: DOE, for example, is saying they believe 629,000 (inaudible) per gram of iron 55 behind; whereas the EPA PRG for that radionuclide would be .8 (inaudible). This column here shows you that the amounts that DOE wants to leave behind is 765,000 times higher than the standard released values for EPA.

Now, EPA under unique circumstances will let you go a hundred times higher than their value. That would still be 7000 times less than what Rocketdyne is saying it's going to clean its facility up to. And you can see the same thing for a number of these other nuclides, that the values being left behind are tens of thousands of times higher than what the EPA would normally permit. And in many cases, we're way outside the outside level of what EPA would ever permit.

These values over here just tell you what the cancers would be. In human terms, if the facility were used under its current zoning requirement, which is rural -- you know, you have something called (inaudible) in Ventura County that's supposed to be developed, and it's current zoning is residential. So for these different isotopes, you can see that their whole prediction is that if you just had a few people out there for agriculture, you could have 1700 cancers. That's what's being proposed as acceptable.

If you look at the back side of the same sheet, we've found that now for the unrestricted residential scenario -- and simply assume there's a high density of residences and a medium density based on standard densities in Ventura County -- and you'll see there, again, that the values that are being cleaned up in the

soil by DOE are vastly different than EPA standards and can cause tens and in some cases more than a thousand cancers.

We're going to have a detailed discussion of that next time, but I just wanted to make clear that the EPA standards are not basically comparable to the DOE's standards. There's a vast difference. And what it's all about is real lives, real cancers.

Now, one very last document here, and then I have one quick other comment and I'm done. You all have a second sheet; it says TLDs. These are thermo-luminescent dosimeters. These are radiation measurements that are placed at the Rocketdyne site and at all sites. We didn't choose the off-site values or the on-site values; these were chosen by Rocketdyne. And the state has similar measurements of its own.

This year -- and the ones I have are for 2000, but the same pattern occurs for decades. The average value for the radiation monitors on site are approximately 34 millirem per year higher than what they are viewing as their background values -- the off-site values. Now, remember that the outside cleanup level for Rocketdyne is supposed to be 15 millirem by their standards. This figure of 34 millirem would cause significant numbers of cancers per year. That's

equivalent of about 6 chest X rays a year and over your whole life. So that would be about 400 over your lifetime.

Their values, their own measurements are showing that the property itself is considerably hotter than the off-site background areas. And that's just for direct contact. That doesn't count the inhalation or the injection values. And that can't be due to the difference in elevation. The difference in elevation would be responsible for about 3 millirem per year.

Now, this is an issue that Gregg Dempsey raised 13 years ago. He said that what Rocketdyne was saying about the difference in elevation was nonsense. It has never been followed up on. And as you will see in the perchlorate discussion, it suggests that years and years of activity has contaminated the site very widely. And we have a significant problem with our own data that this facility is even outside their own risk range.

Now, one last quick comment and then I'm done with this

section. I guess we should leave that up.
VICKI ROSEN: Okay. Fine.
MIKE BROWN: A few people would like to respond to both of those points. I don't know where the best place is, although I'd like -- I think.
VICKI ROSEN: Dan, do you want to just complete

what you have first?
DAN HIRSCH: Yes. I have about one or two minutes more, and then you can figure out how you want to respond to this segment.
VICKI ROSEN: Okay.
DAN HIRSCH: Now, the last comment I have has to do with some slides that Gerard had shown at the last meeting -- Gerard Abrams of DTSC -- about some of the measurements they are making for soil gas for TCE, a volatile organic compound, a toxic material that was used in very large amounts and has gotten to the soil and the groundwater at the site.
Gerard showed you a chart just to show the kind of measurements that are being made, but it was a very significant chart. And I would like to comment on the significance of it for a moment. That chart showed absolutely astronomical concentrations of TCE in the soil vapor -- the air in the soil that you can extract.
Now, what Gerard didn't mention to you is that the U.S. EPA has just recently concluded that TCE is 5 to 65 times more dangerous than what previously thought. And the major risk is that TCE tends to rise up out of the soil and infiltrate into homes producing very, very high exposures to the people who live inside -- not just homes, but any structures.

And the chart that Gerard showed you showed measurements and plumes around and underneath many of the buildings at the Rocketdyne site. I'm concerned about whether or not we have investigated thoroughly the concentrations inside those buildings -- what kinds of exposures that may have been to the workers over the many decades in working on top of these huge TCE plumes; and what this is going to mean to the argument that Rocketdyne has put forward that they need not cleanup the TCE in the soil, because they argue that it's going stay in place even though there's huge groundwater contamination.

So I think we don't have the time here to deal with it, but I wanted to alert you to the new EPA work showing TCE is much more dangerous than thought before and this new exposure pack that has not been addressed before, which is the infiltration of the TCE into structures.

Thank you.

PAULINE BATARSEH: Vicki, I'd like to respond to this. It's up to you if you want me to.

VICKI ROSEN: Yes. I want both you and Mike to be able to respond, but please keep it very brief because we're already behind.

Mike, how about you going first?

ROBERT GREGER: Vicki -- Robert Greger here.

VICKI ROSEN: Yes.

ROBERT GREGER: Mike, could I possibly ask a couple questions of Mr. Hirsch before you begin?

MIKE BROWN: Sure.

VICKI ROSEN: Okay. But I'm asking everybody to make it snappy. We are late.

Who's going first?

ROBERT GREGER: Oh, I'm sorry. Paula, do you want to go first?

PAULINE BATARSEH: Sure. I just want to say that we are fully aware of the new toxicological information on TCE, and that will be fully addressed in our risk assessment when we are making decisions in the future use of that land. At this point, there are really two things we are looking at: The first one is part of GPRA, which is the Government Performance and Results Act, and we're looking on-site at what's going on and potential for vapor intrusion at this point. But we are also very carefully working with our toxicologists and looking at future use, and that's going to be taken into consideration in any future decisions that we make.

Thank you.

VICKI ROSEN: Thank you, Paula.

Okay. Either Mike or Rob, whoever wants to talk

first.

ROBERT GREGER: I just had a --

VICKI ROSEN: Rob Greger, Department of Health Services.

ROBERT GREGER: I have a quick comment and I have question or two for Mr. Hirsch, if I could. The State of California does have dosimeters out collocated with maybe about half of the dosimeters that DOE and Boeing have. We also have a difference between our site TLDs and our background TLD. And the difference for ours -- I believe Mr. Hirsch's data is from the year 2000.

Is that correct, Mr. Hirsch?

DAN HIRSCH: Well, I have all of it with me, but the one I put out was for 2000.

ROBERT GREGER: Okay. Thank you. That's what I was asking.

The DHS -- well, TLD data for the year 2000 shows a 20 millirem difference between the site and the background TLD. Now, Mr. Hirsch, you indicated that you believe that this difference is due to contamination of the site, I believe.

Is that correct?
DAN HIRSCH: I think that's the most reasonable explanation particularly because the background locations have been chosen supposedly to represent

background.
ROBERT GREGER: Are you aware of the very high, very ability spacially of background radiation from the Chatsworth formation on which the site is built?
DAN HIRSCH: Certainly.
ROBERT GREGER: So you realize that the background will vary anywhere from about 4-1/2 micro arc per hour to 8-1/2 micro arc per hour with a hundred yard variations in distance, and that this would account for much more than the 20 or 30 minus 3 which come from the cosmic differences due to height. Due to elevation this would account for much more difference than the differences we're seeing in those TLDs.
DAN HIRSCH: That's absolutely incorrect.
VICKI ROSEN: Okay. We're not going to debate this now, guys. Okay?
ROBERT GREGER: Well, let me -- I believe the audience needs to understand that there are other reasons for these differences in TLDs. DHS, at this point, believes the difference is due to difference in geologic formations. If there is a lot of top soil, the dose rate goes down because it provides shielding. If you have bare rock, the dose rate is much elevated.
We stopped this evening at a local outcropping of Chatsworth formation rock. We measured differences

of up to 2-1/2 micro arc per hour with our instrumentation; and 2-1/2 micro arc per hour is the equivalent of 22-1/2 millirem per year. And that is in the one location that we stopped to measure. So there is a significant variation in the background radiation levels emanating from the terrestrial rock that has upthrust in this area.

That's all I'm going to say at this point.

VICKI ROSEN: Okay. Thank you, Rob.

ROBERT GREGER: I did have -- well, I don't know. Does DOE have anything to say about that topic?

VICKI ROSEN: Mike Brown, Department of Energy.

MIKE BROWN: Just very briefly, DOE also believes -- and also we talked to the health (inaudible) at Boeing -- that this is due to the rock formations. We have some preliminary information that supports that, but we were going to work with DHS over the next couple of months to try to better identify that. And we'd be happy to report back at the next Workgroup meeting as far as the progress of those discussions.

But we do have some direct micro arc measurements as well to show off-site rock formations having significantly higher dose rates and toxin levels. So we will be working with DHS and we'll certainly be happy to keep you informed of the progress on that.

One other short thing. We took a look at Mr. Hirsch's data presented with respect to the risks and the Department differs with Mr. Hirsch on a couple of fundamental assumptions, which would greatly affect his predictions of cancer deaths per generation.

One is he assumes a uniformly contaminated site to the degree of 15 millirems due to DOE activities. Based on our knowledge of the site and the data that's been presented at previous meetings, the highest the dose rate resulting from DOE activities is 7.5 millirem. Most of the site is much lower than 1 millirem due to

that contamination, and there are a few sites that are not contaminated at all. So far less than the entire site would be considered contaminated.

Also, he assumes a land use scenario where 200,000 people live on the top of a mountain. And based on current land use -- two- to five-acre lots -- that would result in a much bigger population occupying the site by factor of a thousand less. So we have differences, but we will continue to communicate what our assumptions are for our risk assessment and our EA and our cleanup standards. But we do have significant differences, and those can affect very dramatically predictions of cancer deaths.

VICKI ROSEN: Thank you.

DAN HIRSCH: Just a very quick response, and then we should move on.

I absolutely did not consider 200,000 people. And I'm shocked to hear that the Department of Energy is now saying that the background locations they chose and have used for 40 years are actually not representative of background and eschewed the results for four decades. I look forward to discussing this as we go forward.

VICKI ROSEN: Okay.

ROBERT GREGER: Vicki, I have some other --

VICKI ROSEN: Okay.

ROBERT GREGER: A quick comment on what Mr. Hirsch has just said with respect to background. It's the principal purpose for site TLDs and background TLDs to look at trends, to look at what happens from quarter to quarter and from year to year. It's not necessarily to look at the difference between those numbers. That's what they are used for.

And to follow-up, I also mentioned the high variability there is in this particular area with background. We have out in the forum -- we have some maps that will show in nice vivid color the great

discrepancy and disparity of those natural background levels due to the underlying geologic strata, particularly in this area which has a lot of upheaval.

Now, I have a couple of questions also on Mr. Hirsch's presentation.

VICKI ROSEN: We're really running over, Rob.

ROBERT GREGER: I understand that, Vicki, but Mr. Hirsch has presented information that is extremely misleading to members of the public.

VICKI ROSEN: Rob, I established at the beginning that we have a schedule to keep. We can discuss these issues later. I think the whole subject of background levels is probably one that we should take as an agenda item at a future meeting. I find it very interesting, and I would think that other people do, as well. But I don't want to see an argument here where --

ROBERT GREGER: This will take me just a minute or two, Vicki. You've let Mr. Hirsch inform these people of how many people are going to get cancer --

VICKI ROSEN: This is not a forum for people to argue their differences continuously. It's obvious to everybody that there are differences of opinion and there are different ways of interpreting data. We don't have to keep going over this at the expense of the public. The public is going to lose their time to be asking questions and getting answers. And I really would like to see this part of the discussion come to a close. We're not -- you know, we're not looking for who

is going to have the last word here. Okay?

ROBERT GREGER: Vicki, I agree with you. However, I haven't had any word on Mr. Hirsch's presentation on the soil contamination levels and the cancers they are going to cause. And I think I can complete that in about the same amount of time we've taken arguing back and forth over whether or not I can say anything.

VICKI ROSEN: No. Dan had his time and you guys had your time to comment. It's over. Okay? We're going to go to the next discussion.

ROGER GEE: Vicki, if there is time later on, if we can come back to this because there is some errors also on the NEPA decision as well in terms of what the alternatives are. So if we could please do that.

VICKI ROSEN: Fine. Yes. And I think this is certainly something that warrants greater discussion at some point, but it just can't happen now.

ROBERT GREGER: Vicki, I would like to make a formal objection. The work rules for this meeting said that the Workgroup is allowed to comment on presentations that are made, and you are not allowing that.

VICKI ROSEN: No.

ROBERT GREGER: I will say nothing more other than my objection.

VICKI ROSEN: Well, you made your comment. And the rules are that we're going to keep to the schedule, and we're not. We've broken the rules there. I would like to get on with the perchlorate discussion, and that's going to be with Dan and Dr. Ali Tabidian, who is from Cal State University Northridge.

Did you want to go first, Dan?

DAN HIRSCH: I have one question about Dave Bakrowsky from the Regional Board.

Is he to make a brief presentation?

VICKI ROSEN: Dave is not, but he's here.

SPEAKER: May I make a brief announcement, though,

please?
DAN HIRSCH: Okay.
SPEAKER: I'm Dave Bakrowsky, assistant executive officer for the Groundwater Remediation Program at the Regional Board. And we won't be making a presentation today, but we did have some handout materials in the back about what the Regional Board is; how to reach us through our website; and a fact sheet of the basic activities we're coordinating with the Boeing/SSFL Project for off-site sampling of perchlorate and so on.
And we will be here if any questions arise regarding our activities at a later time. And we will be presenting an update of our activities at the next

Workgroup meeting scheduled for April 22nd, I believe.
VICKI ROSEN: As it stands now.
SPEAKER: Okay. Thank you.
VICKI ROSEN: Thanks, Dave.
Okay. You're going to have to talk fast now.
DAN HIRSCH: I know that many of you were very concerned about the perchlorate matter. Perchlorate being a toxic material that has now been found in groundwater in Simi Valley and also in a well in part of the Ahmanson area. Again, because I wasn't here last time, I'm grateful for the opportunity to be able to provide you with a bit of additional information and to respond. And then Dr. Tabidian is going to expand on that, as well.
First of all, what is perchlorate? It was used and was disposed of at the Santa Susana Field Lab. The lab was engaged in rocket and reactor testing, and perchlorate is associated with both of those activities. And there is perchlorate contamination in groundwater, surface water, and soils at the Santa Susana Field Lab.
The perchlorate concentrations in the groundwater are up to 670 parts per billion. The State's action level is 4. So that's about 170 times

the State's action level. They have found contamination in three of the four areas on the Santa Susana property,

and I'll show you a map in a moment so you can see where that is.

So three of the four on-site areas have perchlorate contamination, but three of the four directions off-site have also found perchlorate contamination -- a well to the east of the property, about 20 wells in Simi Valley, and the well in the Ahmanson area. The fourth direction area has not been tested very much and we don't really know. So when I say three of the four, it doesn't mean the fourth does not have it.

DTSC produced a fact sheet, which some of you may have seen. The fundamental conclusion, I think, is important. Although no direct link has been drawn between the Santa Susana facility and the sample results in Simi Valley, the nearest known perchlorate user is the Santa Susana Field Lab located three miles south of Simi Valley. At least to date, no other perchlorate users have been identified in the area around the Santa Susana Field Lab.

Now, I have not yet seen the responses to the Regional Board's letter, and if there is new information I'd be very interested to know that. But as of this moment, the only known perchlorate user in the area that we know of is the Santa Susana Field Lab.

The DTSC fact sheet also has this statement, which is repeated -- it come from the U.S. EPA and also

office of Environmental Health Hazard Assessment: "The solid rocket fuel is the main source of perchlorate contamination found in groundwater." If you look around the states in the country, when you find perchlorate in groundwater, you generally find it associated with facilities that tested or manufactured solid rocket fuel, as is the case for this facility here. The office of Environmental Health Hazard Assessment says that in general almost all of the areas in California were perchlorate contamination has been detected have had some activity involving rocket engines or fuel.

Now, we heard some months ago, maybe more than a year ago, a theory that it might be coming from fertilizers, and I think it's important for to you be updated on that. The State Office of Environmental Health Hazard Assessment states, citing the U.S. EPA study from 2001, that U.S. EPA recently tested a variety of fertilizers collected from representative sites around the nation and did not find perchlorate to be a problem. The only exception to this, which is not in this county, but is that there are some unique fertilizers in Chile with high (inaudible) content that have perchlorate in them. But, in general, this

fertilizer theory seems to now be out the window.

Now, what was the use of perchlorate at the property? We know not a great deal about it, but here's one interesting document from 1960. It describes the research development facility at the Santa Susana facility, and one of those was a solid propellant research facility. Solid propellants are what we're talking about, these solid rocket fuels. They had a solid propellant test facility as well with a flight tunnel and test firing bays and so forth.

So the logical question becomes: What happened with the waste perchlorate? Solid rocket fuel is not stable. You have to flush it out of the rockets fairly

frequently, dispose of this perchlorate and the rest of the solid rocket fuel, and then put a new solid rocket fuel into the rocket. So what happened to all that stuff?

Well, here's an example of what was happening to it: This is an interoffice letter from Rocketdyne, March of 1960, regarding chemicals and fuels disposed of by open air burning in an open pit on the property, which I'll show you in a moment. You'll see that they burned ammonia perchlorate and solid propellants, and they were doing this monthly. This is kind of monthly logs of these open air burnings.

This is what it looked like. Lots and lots of barrels in an open area, barrels that would eventually be taken to the place where the disposal were to occur. Sometimes an arsonist would shoot at the barrels to ignite it, kind of a high-tech way of disposing of waste. Material would ignite and you would have a huge plume of smoke coming out from this.

Well, what we're now beginning to understand is that the mechanisms that transport of these contaminants -- and perchlorate is only one of many. We have radioactive materials that were burned in the open air and a lot of other chemicals. It began -- for some of them -- open air releases, and that material fell out over a wide watershed. So if you're looking at a particular location, even a little piece of soil, it's still useful. But the reality is that it appears that it's quite likely there was widespread fall out of material over a wide watershed.

Here's one more photo, a couple more photos. I'm afraid they may not be all that easy, but (inaudible) from these releases. Here's another. So what we are now coming to understand is that rather than looking at one pathway for material to get released -- spilling in one location or getting into groundwater and

25 migrating from that one piece of groundwater -- is that

1 there are probably are multiple connected environmental
2 mechanisms. Some of it was released into air and fell
3 out over watershed; then the rainfall came and the
4 rainfall moved some of that into groundwater and moved
5 other parts of it down the streambed.
6 Dr. Tabidian is going to talk to you about that
7 part of the model in a moment. And then some of it got
8 into groundwater and the groundwater moved. So you had
9 contamination in a number of environmental media, but
10 you have contamination via a number of environmental
11 mechanisms. And this also can explain why you can have
12 movement to the side even though there may seem to be a
13 topographical divide. You know, Rocketdyne may have a
14 little hill separating it from another area, but if it's
15 going up into the air, then when the rains come it can
16 move to lots and lots of places.
17 Now, at the last meeting, Gerard Abrams from the
18 Department of Toxic Substances Control said that he
19 didn't agree with Dr. Tabidian's research in which he
20 suggested that some of the perchlorate may have moved
21 off the Rocketdyne property by surface runoff. When the
22 rains came, the rainfall carried some of that runoff and
23 some of the contamination with it and then got into the
24 groundwater in Simi. And part of the basis for that was
25 the assertion that most of the soil samples they took

1 did not have perchlorate left in them. Well, it's
2 unlikely it would because perchlorate is extremely
3 soluble. The next time the rain comes it's going to

wash out that streambed; it will flush it out.

But, nonetheless, the most important piece of data that Gerard gave at the last meeting to dispute the argument that there could have been any runoff off-site to surface water was the following statement -- I'll read from the transcript: "There are also a number of surface water discharge areas that are monitored by the Water Board" -- that's the Los Angeles Regional Water Quality Control Board -- "there are also a number of surface water discharge areas that are monitored by the Water Board under their permit system which are monitored for perchlorate. My understanding is that they don't detect perchlorate in those surface discharges."

This is an important piece of information -- lots of monitoring and no perchlorate ever showing up in the storm water runoff leaving the property. The problem with this information is that it doesn't seem to be the case. The Regional Water Quality Control Board in December wrote to Rocketdyne, and I've blown up the operable sentence. There are two sentences that are intriguing.

"Perchlorate and other contaminants occurred in soil and groundwater and surface water on and beneath the Santa Susana Field Lab site. Perchlorate pollution of concentrations over 600 micrograms per liter" -- that's parts per billion -- "have been detected in on-site groundwater monitoring wells" -- and here's the kicker -- "and perchlorate concentrations as high as 17 micrograms per liter have been detected in storm water leaving the property."

We now know for sure that the contamination on the site is leaking off the site, and it is leaking off the site in precisely the way that Dr. Tabidian at the December meeting suggested. I want to show you a map for a moment and then stop and let Dr. Tabidian show you

the data and some additional information. And I don't know if this will work on this projector, but just so you can visualize this.

You were shown this map here at the last meeting in December. Basically, the Santa Susana Field Lab is here and these are the various wells in Simi Valley that have been found to have perchlorate. Well, you can't see the measurements, but that's okay. My eyes are so bad that that looks clear to me. I have it for you to look at in detail if you'd like to during a break, and I have the larger version of this as well.

A basic point -- 20 wells in Simi Valley have found it but the map doesn't -- the DTSC map doesn't show what we have at Rocketdyne or to the east or to the south. Here's a map that -- wrong one. Here's a map that does. Maybe this will be clearer for you. Let's see what we can do here. That's close enough.

This is Area I, Area II, Area III, and Area IV of Rocketdyne. Perchlorate contaminations up to 670 parts per billion in Area I; contamination in Area III; contamination in Area IV; 20 or so wells in Simi Valley; a well to the east and an Ahmanson well down here. A pattern of perchlorate all around, but the higher concentrations being on the property and the property itself being elevated -- it's high on a mountain -- above the places where we're finding it off-site.

So with that, let me stop and hand this over to Dr. Tabidian, though I will help.

VICKI ROSEN: Dr. Tabidian, just a reminder that we need to try to catch up with a little time. So just the quicker we can run through this, the better it will be for the meeting.

DR. ALI TABIDIAN: Sure. Good evening. My name is Ali Tabidian. I teach at Cal State Northridge. I teach primarily two courses or two areas in environmental geology and hydrogeology. I would like to say a few

words about why I am involved with this project. First of all, half of the general public -- I'll tell you that about two years ago a gentleman from Moorepark called my office. He said that his son is handicap; he goes through seizures often. And he practically begged me to find out what is going on with Rocketdyne and why so many people are sick in Simi Valley.

He told me that his family doctor told him that she's never seen that many people that go through that specific type of disease in that area that is going on in Simi. He told me that when his wife was pregnant, they lived in a mobile home park at the base of Rocketdyne next to Simi. They actually used groundwater for drinking purposes during the time that they lived in that mobile home park.

The second reason is to help the environment. A couple years ago there was some release of mercury down on the hill. The question is: What happened to that mercury? Is it in the soil? Is it in groundwater? Is it in fish down in the coast? Nobody has answered that question to what happened to that mercury.

I am a Simi Valley citizen. I tell my environmental geology students that they have to get involved with the environmental issues in their community. And as a citizen of Simi Valley, I am

involved with this issue and I am going to continue to get involved. Of course, there are a lot of issues and problems going on and there's a lot of work that needs to be done, and it obviously requires lots of resources. But, as I said, as the general public we should get

involved and we should help.

And, finally, other major reason that I am involved with these issues, I've been coming to these meetings for the past 14 years and it's been very educational for me. I've become a better teacher and I'm much more effective in my classrooms. And, again, I continue to do so.

First I'll give you some summary of what I know, that is not much, then I'll give you some more detailed information; then I will answer any questions that you may have. It is possible that you are confused, some of you, so hopefully when you ask me questions, I can clarify some of the problems or what I didn't explain very clearly in my presentation.

The key concern, and I'm sure this is a key question for many of you, is: Is there off-site perchlorate contamination coming from Rocketdyne? And based on the available data, there is no supporting data for concluding the source of perchlorate is anywhere else but Rocketdyne. Okay?

The available hydrogeologic data indicates that contaminated surface runoff from Santa Susana Field Laboratory transported the perchlorate to Simi Valley contaminating groundwater. Two, the available data point to groundwater transport of perchlorate to Ahmanson Ranch. Three, other than Rocketdyne, again, no known perchlorate users have been identified in the area. Rocketdyne has significant perchlorate contamination, as many of you know.

New data show that perchlorate has migrated off the Rocketdyne site through contaminated surface water (inaudible) as recently as last year. In conclusion, we must undertake further measurements and continue our research to better understand the hydrogeology of the area. Specifically, there are a couple of areas that are extremely important to do more research and collect

more data in order to pinpoint the specific sources. And those two specifically are the transmitting of the unsaturated zone, which is basically the zone that's in the ground surface on the water level.

After this point I don't know of any unsaturated zone sampling. There has been some soil sampling around Rocketdyne, and we don't know that now. There is perchlorate in those soil samples, but limited will be on soil that (inaudible) in what they call the

unsaturated zone. There is hardly any information on that, and that is very important to us.

And the second area that is extremely important, through my research I found that there are a number of locations with losses of surface water through the ground. For example, water flows down the creek and that water disappears. Well, some of that water will disappear through evaporation, but what is happening to the rest of that water? More likely it's seeping into ground and ultimately into groundwater reservoirs. So this is one area that I think should be emphasized in future work to find out -- and not only in creeks and canyons, but also even those waste (inaudible) on-site. It should be researched as far as magnitude of losses.

Because perchlorate migrates faster than most other contaminates, it may be the leading edge of other pollutants migration from the site. The occurrence of perchlorate from the Ahmanson Ranch and Simi Valley area may be interpreted as the candidate in the mine. Okay? So let me get into some discussion with you and give you some more detailed information.

Again, the question is: Is the perchlorate in the soil and waters of southeast Ventura County from a common source? So far, there's been no known documented cases of historical usage and disposal of perchlorate

and perchlorate compounds in the Simi Valley and Ahmanson Ranch area. The only known major perchlorate user in the area, again, has basically been Rocketdyne.

Let me give you some very general information about Rocketdyne, as far as perchlorate concentrations and hydrogeology of the area. Perchlorate and perchlorate compounds have been used and disposed of at Santa Susana Field Laboratory. We all know this. Through soil and water sampling, perchlorate and perchlorate compounds have been found in soils, surface waters, including waters of local canyons and groundwater resources of Rocketdyne.

Concentration of perchlorate in groundwater samples from Rocketdyne ranges from 96 to 670 parts per billion. Santa Susana Field Laboratory is composed of mostly fractured rocks, specifically tap water and formation. Significant in some fractured rocks is that -- let me show you a picture.

In fractured rocks, contaminated water can move much faster, much farther compared to in the ground, for example, assuming that those fractures are interconnected. And there are many indications actually around the lab and surrounding areas that these fractures are interconnected. Santa Susana Field Laboratory is considered a groundwater recharge area.

What does that mean? It means that groundwater has the tendency to move downwards toward groundwater reservoirs and sideways toward Simi Valley reservoir, Chatsworth reservoir, and in the southerly direction Ahmanson Ranch. And specifically, like I said, on this map I just wanted to point out the location of Santa

Susana Field Laboratory and parts of rocks (inaudible) and formation of sandstones.

Let me show you a picture here. More specifically, from around that circle area -- talking about fractures -- actually, there are many active faults in the area. The area that I've circled down there on the lower portion of the map, this is a fault. Part of the extent of this fault is not known. If you look at the other part of that fault, there's a question mark. That means that that fault line actually could go up into a northeasterly direction towards Happy Valley area, for example. So here there are lots of unknowns about the area when it comes to geology of the area. It's very complex dealing with fractured rocks. It's just complicated. Okay?

Now let me talk a little bit about potential means or ways by which perchlorate or perchlorate compounds from Santa Susana Field Laboratory may reach or may have reached other areas: Number 1, transported

by humans. I don't have any data. I don't have any information on that. There are probably other individuals or agencies that will be in a better position to come up with information as far as transportation of waste, contaminated water off-site.

Other ways that perchlorate could have got off-site is through soil erosion. These days, especially in Simi Valley, it gets real windy; and wind not only can move clay and seaside particles, but actually if you go next to the freeway, soil (inaudible) particles actually hit your face. So, you know, when you have 70- and 80-mile-an-hour winds, sediment soil, compounds, perchlorate compounds could be easily dispersed all over. But, again, I don't have any information on that.

Plumes from burning solid rocket fuels, again, other people are better qualified and Dan already talked

about this. Definitely it is a possibility. And I don't have any numbers or any information on that. And, of course, via water vapor. When you are walking on the beach, you can smell and taste the salt. Wet rain takes salt out of the ocean and you can smell it and taste it. So the same way, you know, if water vapor is generated on the site, basically potentially it could pick up chemicals and disperse it through the area.

VICKI ROSEN: Dr. Tabidian, you have about five minutes more before we have to go to a general question.

Do you think you can finish?

DR. ALI TABIDIAN: Sure. This time I'll use my accent from Kansas so I can get through faster.

Another way that perchlorate can get off-site is, of course, through moving groundwater. Groundwater elevations at Santa Susana Field Laboratory are highly valuable. They range from 1300 to 1900 feet above sea level. These elevations are much higher than groundwater levels of Simi Valley reservoir, Chatsworth reservoir, and Ahmanson Ranch area by at least several hundred feet.

What it means, basically, is that you have a water tank here, homes are sitting here, that water goes to these homes right in the lower elevations. So you can think of Rocketdyne as a reservoir of water and chemicals -- okay? -- and you can look at surrounding valleys as those homes. Potential is there for movement of water and chemicals.

Groundwater flows from high potential areas towards low potential areas. There are indications that stream and creek canyon waters disappear as a result of various losses, for example, through evaporation and/or stream losses from rocks and sediments.

My question is: What is the extent of stream, creek canyon, and lagoon losses and to where and in which directions the lost waters have gone or where are they going now? There are a number of (inaudible) streams that of course they bring water from the Rocketdyne area. And under what is called the National Pollutant Discharge Elimination System, Rocketdyne is required to monitor water quality of those creeks and rivers that they actually give off-site.

There is what is called 7 outfall points. If you look on the map, this map is the outfalls. Figure 4 -- let's show this one first. There are two outfalls, No. 1 and No. 2. The purpose of those outfall points are to monitor water quality of water that falls off-site. Okay? And there are five outfalls on the northwest side that basically shows some pinpoints for water that goes towards Simi Valley.

Let's move on to more data here. Basically, I would like to point out that these perchlorate concentrations that you see here, these numbers are obtained from those NPDES monitoring points. So the data basically shows that perchlorate indeed has gotten out of the site to local streams and things like that.

Let's move on to Outfall 2 Data. Outfall 2 Data is the perchlorate concentrations that actually shows

that has gotten to Bell Canyon and to the Los Angeles River. The data for the 1990 -- you know, those numbers that imitate less than 0.7 with detection of 0.6. I'm not sure what kind of interpretation they got from those numbers. Hopefully somebody from Rocketdyne can explain what exactly those numbers are. But the top numbers to me indicate that perchlorate indeed has gone to outfall points No. 2 and has gone to Bell Canyon.

The next page, those less than 500 parts per billion perchlorate concentrations with detection -- let me start our list here. Again, these are numbers that I've -- actually, all of these numbers are coming from reports that are prepared by Rocketdyne. So, again, hopefully somebody tonight or next time can explain what those less than 500 concentration means here.

However, in December I proposed a model for Simi Valley that our groundwater reservoir was contaminated by perchlorate. And here you see clearly that on May 5, 1998, water concentrations of perchlorate reached 4.26 and actually got into Simi Valley area and entered into groundwater reservoirs of the area.

Actually, I have another major question here that hopefully Rocketdyne people -- I know some of you are here -- if you can tell us tonight or maybe next time -- Has there been any rerouting of contaminated

water, including water contaminated with perchlorate, before and/or after the establishment of present outfall slash sampling points for perchlorate?

I think I easily can skip some of this information here and move on to -- I am proposing similar models that have contaminated water from Rocketdyne, you know, that perchlorate could get through Ahmanson Ranch areas. There are several possibilities. Last December here I told you that it is impossible for perchlorate from Rocketdyne to get to Ahmanson Ranch area. I told you that Rocketdyne is sitting in a different drainage basin compared to Ahmanson Ranch area, but is sitting in Las Virgenes drainage basin.

At that time I didn't mention groundwater and that confused a few people here. So I wanted to emphasize here that there are a number of ways that contaminated water from Rocketdyne could potentially get to Ahmanson Ranch area. But one possibility that I'm ruling out here is the first model. I am saying that

(inaudible) water from Santa Susana Field Laboratory to Ahmanson Ranch, this would be impossible because, again, surface water cannot go over a high hill and get on the other side. However, there are many other possibilities that groundwater could get from Rocketdyne area to the Ahmanson Ranch area.

Now go to the next page. Basically, groundwater from Santa Susana Field Laboratory could actually get to groundwaters of Ahmanson Ranch. Available data supports this model. Again, going back to groundwater levels, to perchlorate concentrations at Rocketdyne, you look at groundwater levels at Ahmanson Ranch on concentration, you can you easily make this model. So those pieces of data are very supportive of this model. Okay?

As far as Simi Valley goes, again, I am proposing several models. There are several possibilities for perchlorate to get from Rocketdyne to Simi Valley area. But the models that I proposed last December -- with the new data that I discovered during the month of January related to NPDES data that I earlier talked about, that 4.26 parts per billion concentration that's already mentioned.

So the point is that the new data that I got from this publication actually supports that model. And that model, for those of you that were not here in December, is -- if you could go a couple of pages forward. Surface water from Santa Susana Field Laboratory, what I think happened is that it released episodically with low perchlorate concentrations to local creeks and canyons, and from there that contaminated water got to around Simi. And then from

Simi that contaminated water has seeped into groundwater reservoirs off of Simi Valley.

Again, with all the perchlorate data, I proposed this model in December. I collected new data in January that supports the model. And this new data, it may support that model or I may have to revise that model. Like I said, there are many other possibilities, including this model, that actually could contribute to perchlorate concentration in Simi Valley groundwater reservoirs.

My conclusion, based on the available data, there are no supporting data for concluding the source of perchlorate is anyone else but Rocketdyne. More measurements and research should be done to determine the source and mechanisms of transport and extent of contamination and implications. And because perchlorate migrates faster than most other contaminates, it may be the leading edge of other pollutant migration. The occurrence of perchlorate in Ahmanson Ranch and Simi Valley areas may thus be interpreted as the (inaudible) in the mine.

Thank you for your attention.

VICKI ROSEN: Thank you very much, Dr. Tabidian.

We're going to skip the break tonight so that we can continue with the discussions and the agenda items.

So if anybody --

JERRY RASKIN: Dr. Tabidian, we thank you as public citizens. You are to be commended for what you're doing.

VICKI ROSEN: Thank you, Jerry.

We would like to have some discussion among the Workgroup members. Is there some discussion?

BARBARA JOHNSON: Yeah. I'd like to say that this information that we got was the only information that we received ahead of time before this meeting. And I thank

you very much, Dr. Tabidian and Dan Hirsch.

PAULINE BATARSEH: Vicki, we got the presentation materials two weeks ago, and Gerard Abrams and Richard would like to respond to both Dan's presentation and Dr. Tabidian's presentation, if you would allow them.

VICKI ROSEN: Yes. Please -- you can do that. But please keep in mind that following you and anybody else who wants to comment here, we do need to make time for the public. After this -- and I would think there would be a lot of questions and comments. So just keep that in mind and, please, go ahead.

PAULINE BATARSEH: We'd like to start with Gerard's presentation.

VICKI ROSEN: Gerard please announce, again, who you are and where you work.

GERARD ABRAMS: My name is Gerard Abrams, and I'm with the Department of Toxics. It's going take me a moment to get this slide up that I want to talk from.

VICKI ROSEN: In the meantime, while we are waiting is there anyone else at the table here who would like to make a comment?

JONATHON PARFREY: Yes. I'm Jonathon Parfrey with the Division for Social Responsibility. For those residents who are interested in learning more about perchlorate, in the back of the hall there are some fact sheets that our office has created -- one on human health risks associated with perchlorate, and in addition there's some, but not many, Wall Street Journal pieces that ran last month or a little more than a month ago and it documents the pervasiveness of the problem of perchlorate in drinking water.

And I know that the County of Ventura is going to be hosting a meeting -- I believe it's this coming Monday -- on problems associated with perchlorate. And I know there are people in the audience who are working on that hearing as well.

SPEAKER: It's the State Assembly who is doing it.
JONATHON PARFREY: Yes. And would you make that announcement from the microphone so that the public can attend that meeting.

SPEAKER: Sure.
VICKI ROSEN: Okay. And then we'll go into Gerard's presentation.
SPEAKER: The Civic Arts Plaza in Thousand Oaks on February the 10th will be hearing and addressing the particulars of the issue of perchlorate contamination at the sites and statewide, not just in this area but also the Santa Clarita case and other statewide cases. We'll have representatives from state agencies and some scientists that have some background dealing with the issue. And it's a Joint Legislative Committee Meeting of the Assembly Committee on Natural Resources and the Assembly Committee on Environmental Safety and Toxics. If you have any questions, feel free to ask.
VICKI ROSEN: Thank you.
SPEAKER: It's at 7:00 p.m. right by the theater in the Founder's Room.
VICKI ROSEN: Thank you. Okay, Gerard.
GERARD ABRAMS: Okay. Professor Tabidian and Dan Hirsch represented a lot of material tonight. They've made some strong conclusions regarding the source of perchlorate in Simi Valley. Unfortunately, we don't believe those conclusions are supported by the data. What I'd like to do is take some time and share with you what we know about the data and what we think is going

on at Santa Susana Field Lab related to perchlorate.

As Dan had mentioned and Professor Tabidian had mentioned, there's three areas at Santa Susana where perchlorate has been detected: One area is the former sodium disposal facility in Area IV; there's a single well that has a detected perchlorate in an area called Compound A in the center area of Santa Susana Field Lab; and there's the Building 359 area and the Happy Valley area over in the eastern end of the Santa Susana Field Lab where the perchlorate use and research activities occurred.

Perchlorate was not used in the liquid fuel testing that occurred out at the Santa Susana Field Lab. It was associated with energetics testing, Happy Valley development of a military rocket and NAKA rocket -- and I've got a picture of that shortly -- as well as development of igniters.

This view shows the former sodium disposal facility, and those four wells unfortunately were mislocated from the previous graphic that was shown by Dan earlier. They're actually located over in the former sodium disposal facility in this area right here. Also, the well concentration data for perchlorate are somewhat out of date by three or four years. The current concentrations are 4 parts per billion in this

RD29 well at this location; 6 parts per billion in the shallow well called RS54 in the center of the (inaudible); and less than 1 part per billion in RS18 and RS54.

This is an aerial photograph of that area. It shows -- the (inaudible) area shows the former sodium disposal facility and where those wells are located. What the previous chart shown by Dan doesn't show is all the wells surrounding the former sodium disposal facility and the well concentration data in those wells. There's over 20 wells immediately around the former

sodium disposal facility, which has been analyzed for perchlorate and has no detects of perchlorate.

This is a plan view. And if you look at a cross-section through that well data going towards Simi Valley, we can get an idea of how the perchlorate is distributed in the subsurface. So we have a shallow well, RS54, at 6 parts per billion; and that well depth is about 39 feet below ground surface. And the deeper well, RD21, which has a concentration of 4 parts per billion.

Notice the wells around the former sodium disposal facility are nondetect for perchlorate. Some of those wells extend down to a depth of -- which are nearly at the elevation of the Ahmanson Ranch well that

is three miles away. We find it very hard to believe that perchlorate could have been released from the former sodium disposal facility, moved down into the subsurfaces and rock, and groundwater migrated three miles away and none show up in wells immediately beneath the impoundment.

We can also look at another cross-section going towards the west, and look at those well profiles. And when we do that we can see the shallow well at 6 parts per billion, the RD21 well with 4 parts per billion, and the nearby wells. Again, they've been analyzed and have no detects of perchlorate. Some of these wells are quite deep and extend down to 500, 600 feet below ground surface and extend down nearly to the elevation of the Ahmanson well three miles away and also the valley elevation in Simi Valley.

If we look at a cross-section line extending 1500 feet further to the north away from the burn pit towards Simi valley -- look at that well information. We can see where the perchlorate is located directly beneath the sodium burn pit. But these deep wells downhill and downgrading from the former sodium disposal

facility have no detects of perchlorate.
This blue line represents the elevation of the Ahmanson well. You can see that some of these wells

extend below that depth. Again, we don't see how the sodium disposal facility could have been a source for perchlorate and not leave any trace of perchlorate in any of these wells.
I'd also like to address Dr. Tabidian's proposal about source of perchlorate in Simi Valley is from surface water discharge. The only area at Santa Susana where there's perchlorate which drains north towards Simi Valley is the former sodium disposal facility. And along this north boundary of Santa Susana there's five surface water monitoring points that are monitored routinely during winter rains for perchlorate, among other chemicals.
Two of those discharge monitoring points are located at the former sodium disposal facility -- one right below the impoundment and one several hundred yards below that. These have been monitored since 1998, as well as there's been over 230 analyses for perchlorate from discharged points around Santa Susana. And those include water that drains south into Bell Canyon and also monitoring that's occurred over by the Happy Valley drainage.
There's been -- of those 230 analyses over of the past five years, there's been 13 detects of perchlorate. And 12 of those are over at the Happy

Valley monitoring point. One has occurred over at the

former sodium disposal facility drainage, which is Outfall No. 6. So that was a whopping 4.26 parts per billion of perchlorate that occurred once over about 68 analyses over the five-year time period.

So this is what Dr. Tabidian was hanging his conclusion on, that perchlorate has moved outside and contaminated the Simi Valley basin, a basin that's 20 square miles in area. It's likely that at 4.26 parts per billion perchlorate moved off-site through the surface water that within a couple of hundred feet during the rainfall it would have diluted to the point where it couldn't be detected at all. So this doesn't really look like it's a credible source for impacting such a large basin.

Our experience has been -- if you look at the large sources areas where perchlorate contaminations occurred and where there are large plumes several miles in length, which is the distance from the FSDF out to Simi Valley -- an example would be Aerojet up in Sacramento. The concentrations at the source area are past hundreds of thousands of parts per billion perchlorate in the water. As the perchlorate moves away from the source area, it disperses and dilutes. So it doesn't appear to us as if there is high concentrations

significant enough to move very, very far, let alone impact a basin that's 20 square miles in area.

This is the other point where there's a detect of perchlorate out at Santa Susana. It's in well ES24, which is a shallow extraction well, in an area called Compound A. That's in this area. Let me show you a bit of a close-up. In Compound A there's one well which has a detect of perchlorate. There's quite a number of wells around this well.

The blue wells have been analyzed for perchlorate, and there's no detects of perchlorate in these wells. The source of perchlorate in this area is

believed to be resulting from explosives that they were using to bend steel in a tank, and that activity lasted for about four years in the 1980s. Again, it appears to us that it's very hard to describe how you could have -- this is a source that's moved down into the subsurface away three miles into Ahmanson Ranch area or north Simi Valley and not show up in any of these other wells. The sources are large enough to give such an impact over such a large distance; it should show up and leave quite a mark in the nearby wells.

I'd also like to talk about the Happy Valley area. There's a number of deep wells over in Happy Valley that are impacted with perchlorate at fairly high

concentrations. This is where perchlorate was used, utilized and stored. And this is where there's quite a lot of contamination in the soil.

One of the areas is Building 359, and this is where the perchlorate was stored. Also, this is where they developed a NAKA rocket, which is a small military rocket, as well as igniters used in rocket engine testing. This is a photo showing the NAKA rocket that was developed there, and these are some of the igniters that were developed there.

The other area where perchlorate contamination is found and where it was used is the Happy Valley area. This is an area where they tested energetics by firing rounds into a target against a hillside from a gun. Also, they had a tunnel set up where they were firing these rounds, and they had cameras in the tunnel and were photographing and doing measurements. This is where a lot of the perchlorate use occurred.

This is an aerial photograph of the Happy Valley area. That building in the center is where they were handling a lot of the perchlorate, and that's where there's a lot of perchlorate found in the soil. There was an (inaudible) action to cleanup this area in terms

of the ordnance material. There was an extensive
geophysical survey to locate the metallic anomalies and

they were expedited; and approximately 1800 cubic yards
of material was sent out to (inaudible) landfill.
So the wells in the Happy Valley Building 359
area, the highest concentrations -- this is Building 359
area. The highest concentrations are in these
Chatsworth formation wells adjacent to the perchlorate
storage area. The highest concentrations exceed 700
parts per billion in the Ohio 16 well. There's this
RB10 well which has 180 parts per billion, and this well
is located right near the perchlorate use area.
These light pink wells are shallow wells, and
these are relatively new. Dosimeters have been
installed as part of our shallow groundwater
investigation work out at Santa Susana, and they have
about 20 parts per billion perchlorate. And this is the
monitoring point where during the winter rains they are
picking up the perchlorate in the surface water
discharge.
I'd like to say that there has been a fair
amount of investigation work that's going on in this
area right now in terms of the hydrogeologic
characterization. We talked about it a little bit last
time. There is (inaudible) that have been drilled into
the bedrock in some of these source areas. The wells
are -- the deep wells are being retrofitted. And some

of the perchlorate wells -- wells with detects of
perchlorate -- have now been retrofitted with the

discrete fluid sampling devices, as well as these wells up in the northeast area.

So we've collected quite a lot of data throughout here for perchlorate from those discrete ports. This investigation work is nearly completed and that information will be available in a report in a couple of months. There's a lot of work left to be done out at Santa Susana. We don't have all the information at this point and all the answers, but we do have -- there is quite a lot of well data.

So if we're looking at the Happy Valley area as a source of groundwater contamination to Ahmanson Ranch, then we have to consider the well data between Happy Valley and Ahmanson Ranch is showing us. And there's a number of deep wells in this area along Area I road and on the south side of Rocketdyne which have been -- all of those blue dots represent perchlorate analysis in wells, and there's no perchlorate detects.

This half shows wells along the south perimeter of the Santa Susana Field Lab. These wells were sampled during the last quarter sampling event. DTSC went out there and collected split samples, and there were not any detects of perchlorate. This cross-section line

shows the profiles of those wells. And, again, some of them extend quite deep. And we would believe that if perchlorate were moving from the Happy Valley area that we would see it in these wells.

This map shows all the wells out at Santa Susana. The blue dots are wells that have been sampled for perchlorate and have no detects. The red dots are the wells that have detected perchlorate.

I'd like to address Dan Hirsch's comment earlier where he points out that this 4.6 parts per billion detect is something that we tried to ignore. This is a sample that we collected along with all the other soil samples down in the canyons. We initially got a detect

of 4.6 parts per billion, and we thought we found something. So we went back and collected quite a lot of soil. In fact, we collected 60 pounds of soil, washed it, split it into two samples, analyzed it, and did not find a trace of perchlorate in any of it.

If perchlorate were in that soil, it would have come out in the water. We also split those soil samples and analyzed six samples from that location for perchlorate, as well, and did not detect any perchlorate. So we did not duplicate that detect, and we do not think it's real.

And, also, I'd like to mention this well over

here. This is 0S15, about 1500 feet off the boundary from the Rocketdyne site along Rosie Canyon Road. That had a detect of 4 parts per billion during one of the quarterly sampling events. And it since has been sampled a number of times and was sampled prior to that sampling event and it's had no detects of perchlorate.

I might also add, there's quite a number of wells between that OS15 well. And this area in the northeast portion, this is where we concentrated initially on our initial phase of the work out here with our retrofitting. And there's no perchlorate up in these wells either.

I'd like to finish up. This shows the analysis. The red dots are detects of perchlorate that we've found in wells that we and the Water Board have sampled last year. You can see that the perchlorate is fairly widely distributed across Simi Valley. If the perchlorate moved down -- if there was a release of perchlorate down the drainage, as proposed by Professor Tabidian, we would think that we would see some hot areas close to the drainage with decreasing amounts as you got away from the point source.

Here it's fairly widely distributed. Actually, each one of those red dots represents more than one

25 well. It's usually a gas station that was sampled where

there's usually five, six, or seven wells. When you look at the groundwater flow directions based on water level data, you see the flow directions are away from the north side of the valley towards the Simi Arroyo.

The flow directions where those perchlorates are detected are away from or towards the south side of Simi Valley. So if there's perchlorate coming down the drainage channel going into the valley, one has to explain how it could have migrated upgrading against the flow of direction up to the other side of the valley.

I'm going to turn the microphone over to Richard Mc Junkin, and he's going to complete the discussion.

VICKI ROSEN: And if you can just speed it up a little bit, that would be great. Thank you.

RICHARD MC JUNKIN: I'm a geologist with the Department of Toxics, as I said earlier. And I was involved in a lot of the sample collection along the north side of Rocketdyne. And you might notice that a lot of these are away from known source areas. These samples were not collected respective to where we knew the perchlorate existed. These samples were collected on all the drainages leading from Rocketdyne because we anticipated that there probably was either an accidental release or an undocumented release of perchlorate along the north of the facility.

And I would also like to say that Professor Tabidian has questioned some of our protocol. He thinks that the perchlorate can be flushed off in high flow

rainfall events and be flushed down the canyon into the valley. Well, I'm sorry. I've done a lot of perchlorate sampling, and not just on this site, but in other areas, and he himself admits that the water goes into the ground.

These are losing streams. That means the water goes into the ground. And if you put oil on a piece of paper or on a piece of material, you can never get it out. And perchlorate is very soluble. And in parts per billion concentrations, you're going to see some residue left behind.

So these samples were collected, as Gerard said. We took four to five samples and we washed each one with one gallon of water. Actually -- excuse me -- we used three samples in the main channel today, and on the little side terraces of these active channels we took two more samples. Professor Tabidian was with us when we did one of these sampling events, and we washed each sample area with one gallon of water. To keep the water down, that water was filtered and allowed to settle and sent off to our HMO lab, our own DTSC lab for analysis.

They did come up with the one hit of 4.4 parts

HML

per billion -- excuse me -- 4.6 parts per billion, and that could not be reproduced. We will go back and we're going to sample one more time in that canyon just to further verify that.

Gerard also mentioned the (inaudible) the red dots from the Water Board monitoring the gas stations and things. The actual elevation of the water in those areas is higher than Arroyo Simi. Water cannot come down the canyon, these side canyons, and flow to Arroyo Simi and then back uphill to the other side of the valley, the north side of the valley, and then have the detections that we've had there.

And we've already documented, as we demonstrated and discussed last time at the meeting in December, that

it's pretty conclusive that the release in Simi Valley is from a shallow source because we don't find it at depth. We have clustered wells that go down over 100 feet into the groundwater and those are nondetect. However, wells near the surface of the water table have detects. So that's very characteristic of the surface release.

So if I had an unlimited amount of funds and I could do a hydrogeologic investigation, I would be looking from where these arrows are coming from. And except for the one 4.4 on the east side of Simi

Valley -- oh, and there's another one at Crooner Avenue. We just got back that data. It's not on here, but that was a nondetect at the gas station right as you get off the freeway at Crooner.

So except for that very eastern most red square, the others look like a source area is similar coming out of Tapo Canyon. So if we had unlimited funds, that would be the area I'd go. Not that we're riding off Rocketdyne and giving them a clean bill of health. Hey, the data are what they are. And if it's coming from Rocketdyne, we're going to deal with it. And we're not going to stop looking right now. But, I mean, you have to look at the numbers and what they're indicating.

And as far as the Ahmanson Ranch, there's one thing I haven't heard here today. There hasn't just been one sample collected with a hit, there has been several samples; and there's only been one that had a detect. When that detect -- that 28 parts per billion was discovered, there was another sample collected at the same time, at the same depth, and that came back nondetect. Now, that's rather perplexing because 28 is a little bit too much to have an interference from (inaudible) or something. I don't know how to answer that. But there's a lot of problems with those data that need to be further investigated.

So I'll leave you with that perplexity. Thank you.

VICKI ROSEN: Can you do your rebuttal fairly quickly, Dr. Tabidian? If you're going to be pointing out something new, we need to get to the public discussion here. And I'd like to suggest that if you can't see it that well now, you can have it posted outside after your presentation where people can go up and look at it.

I'm going to ask you to please make this very quick, Dr. Tabidian.

DR. ALI TABIDIAN: One of the major things that is missing is that we are emphasizing present data, data that we are showing on these pictures and according to the past few years. All of the perchlorate has been used from Rocketdyne since the 40s and 50s. Have you looked at the groundwater level of Simi Valley since the 40s and 50s? Have you compared streambed elevation compared to groundwater elevation?

When you talk about groundwater hydraulic and groundwater gradings and you are saying that groundwater levels in Simi Valley are higher than stream, then you are talking about present condition. If you go back and look at those water level data in the 50s and 60s, water in the river was at here and groundwater level was here.

You tell me which direction that water from the stream would go.

Remember, these perchlorate concentrations that you see here, they've been collected since 1998, 1999. And now they are monitoring under MPDES system. What

has happened during 50, 60 years? This is the comment that I have with Simi valley. As far as Ahmanson Ranch area goes --

VICKI ROSEN: We really do have to move on.

DR. ALI TABIDIAN: This will take a few moments.

RICHARD MC JUNKIN: You know, the one part per billion is the same as one second for 33 years. You can't have it go in and come out.

VICKI ROSEN: After this, Rick, you can say something else and then we're going to the public.

DR. ALI TABIDIAN: Like I said earlier, groundwater flow in fractured rocks can move very far, very fast. This picture has nothing to do with Rocketdyne and Ahmanson Ranch. Again, it's a low budget project here. But if you compare these two pictures, basically the lower picture is telling you that contaminated groundwater can move very far, very fast in fractured rocks. As we discussed earlier, we are dealing with fractured rocks in the area.

And the second thing that I would like to

mention here is that area data indicated that the contaminated water has gone to Bell Canyon. In this picture you can see Bell Canyon to the right. You see those orange and yellow color rocks? You can look at it as pipes. Okay? So these pipes are hooked up through Bell Canyon.

If you have contaminated water in Bell Canyon, there's definitely potential for that water -- there should be fractures. And the well that has been tested for 28 parts per billion for perchlorate is located -- well, I am using this general diagonal, it is not specific. But that well is located somewhere like this and here is Bell Canyon. So if Bell Canyon level and the water level in Bell Canyon is here -- okay? -- if that 28 parts per billion was detected down here, there is potential for movement of that water in that

direction.
Thank you.
DAN HIRSCH: I'd like to respond.
VICKI ROSEN: Okay. And then, Rick, we'll go to you.
DAN HIRSCH: I want to remind all of you who haven't been coming to these meetings about this history. When they first started measuring for perchlorate in the Simi Valley area, we have been told

for years by Gerard and other people from DTSC that the community has absolutely nothing to worry about contamination from Rocketdyne. Actually, their evidence is moving and our model has demonstrated it can't possibly move off this hill. The --
GERARD ABRAMS: Dan, I don't believe I ever said that. I'm sorry. When was that?
VICKI ROSEN: Okay. We're not going to go there.
SPEAKER: Let him finish.
DAN HIRSCH: When (inaudible) water district found perchlorate in the water wells in Simi Valley, DTSC said, "We don't believe it. We think it's a false reading. It can't be true because it can't be moving off rocks." EPA was asked to come in and do additional monitoring. It took another year, but EPA came back with positive findings. Again, DTSC said, "We don't believe it. It can't be true. It can't be a real reading."
Then DTSC took another year to finally do measurements in the same location and came back with results, and they had to conceive -- Well, we were wrong. It is perchlorate; it is measurable; it is detect; it is real. But we don't think it can be anywhere else. It's got to be an isolated incident regarding that one well or a couple of wells in that

well cluster.

So then they came back and did some more monitoring, and they discovered it was in more than a dozen wells. Each time they were wrong. Then they said, "It can't be coming from Rocketdyne. It must be fertilizer." EPA then conducted a study saying that fertilizer wasn't the problem. You never hear them say, I'm sorry. We are were wrong. You never hear them say, There's new information and corrections.

So at the last meeting two months ago, DTSC got up and told you, "It cannot be migrating off the site. The Regional Water Quality Control Board monitors that, and they don't find any perchlorate in the runoff." And we now have them admitting that that is false and that they have 13 different times where perchlorate has been found migrating off the property.

You've heard a lot of discussions about why they think it can't be Rocketdyne. I wouldn't mind Rocketdyne saying that, but I am really furious when a state agency says that. I wouldn't mind if they said, We don't know for sure where it's coming from. But I'm really upset when they say that it can't be Rocketdyne. And I'm particularly upset when they can't present any possible alternative.

Their own fact sheet says it comes almost

exclusively from rocket testing. Their own fact sheet says the nearest known user is Rocketdyne. Their own fact sheet shows having contamination on the property, and yet we have here that they are saying, We agree with Rocketdyne; it can't be coming from them. And never admitting, We were wrong in the sense it's not in the

storm water; we were wrong about the fertilizer; we were wrong about those past notions.

Now, two quick technical things and then I'll sit down because we have lots of other stuff on the agenda. You saw two mistakes in what was just presented to you. One is spacial and one is temporal. The temporal one, time is what Dr. Tabidian just mentioned. They are looking for leakage now in concentrations that they've asked to be very high to explain what is found in Simi Valley, but this place was leaking for 50 years. The heavy usage was in the 50s.

If you had leakage, as we had suggested, and for what you now have trace evidence showing up in the storm water even today, as Dr. Tabidian points out, those concentrations would have been immensely larger in the 50s and 60s. And you would have had four decades to flush out those streambeds. That's how they were measuring it. They add water to it to see if anything comes out. If perchlorate will come out in the water,

it will come out in the water when the water runs down the stream.

The second mistake they made was spacial. They showed you a two-dimensional little plate showing the wells that had perchlorate and the wells nearby that don't. They are saying, Hey, if there's perchlorate in the (inaudible). As Dr. Tabidian points out, this is fractured bedrock. The flow doesn't occur through the rock; it flows through the fractures. And those fractures are tortuous. They are not something you can model. You can put a well here and a well here and a well here, and the chance of your finding that fracture is very, very slim.

All we know is the only known user. They used a lot of it; they burned it in the open air; they have heavy contamination on the property; they have contamination in virtually all the directions around it.

And what you were told last time that there's no evidence it's moving is absolutely false. We now know from the Regional Board that the place is leaking.

A lot more research needs to be done; but for me to have some confidence, I would like a regulatory agency that gets up and says: A lot more research needs to be done. We don't know if it's Rocketdyne or not. It's the only known user. There are a lot of reasons

why it could be. Our model says it should have moved, but it's there. We better find out why.

And what worries me is that all the years of denying the problem means there's more stuff flowing off, more other problems.

Thank you.

VICKI ROSEN: Thanks, Dan. We're going to go to Gerard and Rick, and then we're going to the public. I'm sorry. I got to do it.

RICHARD MC JUNKIN: I just want to make a couple of statements. I'm not going to sit up here and argue. The source areas at Rocketdyne, if they are still there, are still there. They're still leaking. I mean, they might have gone down a little bit. I'm not saying this because I think this is what's happening. This is what happens with (inaudible).

It's been 40 years. Perchlorate is still in the sediments in the streams, up on the sides of the hills. It doesn't matter how logical it is, there's always a little bit at part per billion level that hangs around. And when you look at it, that's why we washed 50, 60 pounds of soil. If you go up and take one soil sample, you're not going to find it. But if you take a lot of soil, it will come out.

And Boeing didn't help us on this project.

Boeing didn't pay for this project. We thought all of this project up by ourself; we went up the canyon by ourself; we collected the samples by ourself. There's no collusion here. And, I'm sorry, I'm going to take a little personal offense because behind the scenes, there's been accusations of collusion. Employees don't do that. This is an independent investigation. Nobody's is on the take here.

We just want good data. It doesn't matter if -- I don't care. If Boeing is guilty; they are guilty. But the numbers that we're looking at right now are telling us, Don't be preoccupied with wasting your time in certain areas. We don't have a lot of time to waste and we don't have money. We've got to look where the data are telling us to look. And if it's Rocketdyne, it's going to be Rocketdyne; and we'll have to address that fact.

But I'll be happy to speak with you off the record if you want to come up and talk to me.

VICKI ROSEN: Okay. Thank you.

I'd like to open the floor up to the public. If you have questions, please come up to the microphone so we can all hear. Line up by the mic.

How much time can we spare? You know, we're going to have to do away with the final commentary. How

much time do you need for your comments. One hour right? Okay. I'm going to ask you folks to make it really fast. I'm sorry. We can give you 10 minutes.

SPEAKER: I live in the community and I'm actually a project manager who's been working on the investigation of perchlorate at Santa Susana. I'd like to let everyone know that we've prepared a three volume report on perchlorate concurrent at Santa Susana as well

as off-site locations. We've collected about 1600 samples -- 1,630 samples of soil, sediment, groundwater, seeps and sprays on-site and off-site for a period of five years. A lot of science has gone into this and a lot of hard work.

The conclusions are Santa Susana is not the source of perchlorate in Simi Valley or in Ahmanson Ranch, period. There are other sources, Dan, in Simi Valley and you all know it. Road flares contain 10 percent perchlorate. One dissolved road flare could impact two-acre feet of water. There other sources. Please acknowledge that. The report is available in the Simi library in the repository.

Thank you for your time.

VICKI ROSEN: Thank you. Next, please.

SPEAKER: I'd like to make a comment. My name is Christina Walsh. I'm with the West Hills Property

Owner's Association. And your comment was that you need to follow the data and that the data needs to tell you where to look. But the only source that you have found is the exceeding 700 parts per billion on Rocketdyne.

So my question is: Where is that telling you to look, then, if it isn't Rocketdyne? You don't have another source -- compared to what this gentleman just said -- because if you had another source, you would be saying it. You'd be saying it every day. So where is it telling you to look?

GERARD ABRAMS: Yeah. Can we get the overhead?

While that's happening, Christina, I'd say that Happy Valley is a source most definitely for perchlorate, but the drainages to the east. So if you're arguing that the perchlorate from Happy Valley went down into Chatsworth and then somehow got over to Simi Valley, we disagree with that.

SPEAKER: But the fact is, I mean, you all are very, very smart people just like the rocket scientists

who created this mess. Just because you don't know how it got from point A to point B doesn't mean that there isn't a way for it to happen. And instead of just saying it can't be, I think we need to keep saying, We have to figure this out. And that's not what we're saying.

RICHARD MC JUNKIN: That's exactly --

SPEAKER: That's why we're here. This is a long line and that's why this is a long line because we're hearing they didn't do it instead of we need to figure it out.

RICHARD MC JUNKIN: That's not it.

SPEAKER: Hi. My name is (inaudible) Burman. I'm the executive director for (inaudible) in Ahmanson Ranch, and I live in the Woodland Hills area adjacent to all this that's -- Rocketdyne and Ahmanson, obviously.

I have a couple things. One is I'm very concerned about in Ventura County saying that they will destroy the wells on Ahmanson. Now, I want to make it perfectly clear that there were four samples taken in one well. There are many more wells on Ahmanson and they did not test on those wells. Why? Who knows. But they have not tested those wells. And I know that we, the public, want to see those wells tested before they are destroyed. And who knows what's underneath that could come up. So we're very concerned about that.

Then secondly, one of the things that you haven't talked about is about a supply -- a mode of how it got there is something that our consultants at the Ventura County hearings talked about, which is the deep supply wells. And I haven't heard mention of that of

how that could have been the source of the perchlorate on Ahmanson.

And then just one other point is that I was very concerned -- you know, with living in the area -- that the gentleman from the Department of Health Services, that you were out of the room during Dr. Tabidian's whole presentation because I think it was very compelling and very important information that was provided. And I think for the health and welfare of the people in this area, we want to know that our state agencies are responding.

VICKI ROSEN: Thank you.

ROBERT GREGER: Vicki, I would like to respond to that. I represent the Radiologic Health Branch. I do not represent any organization in DHS that deals with perchlorate, and that's why I was not here for that entire presentation.

VICKI ROSEN: Thanks, Bob.

Yes, ma'am.

SPEAKER: I have a comment and then I have a question. My comment is -- and I have no idea if you people can influence it -- but to destroy a well and to abandon a well are two entirely different processes. And I don't know if you oversee it, but if you found perchlorate in the well on Ahmanson they should not be

allowed to destroy it. They must abandon it properly, which means to dig down; and they should probably take samples all the way up. And it may give you a clue where that perchlorate came from.

And all these nondetects, how deep were the samples taken? Were they at the surface?

RICHARD MC JUNKIN: We excavated down to about 18 inches to 2 feet below the surface.

SPEAKER: This is all dirt?

RICHARD MC JUNKIN: It's actually in the river --

in the channels there; it's silty sand, a lot of cobbles.

SPEAKER: So it's like 2-feet deep? Because if the perchlorate has been -- as someone else suggested -- well, you suggested it -- that you washed it out into the water. If it's been washing out since 1940 or '50 or whatever, we're now 50 or 60 years down the road, don't you think that it might be possible that it could have washed down a little deeper than 2 feet?

RICHARD MC JUNKIN: Well, it hasn't in other sites such as Whitaker --

SPEAKER: What if it --

RICHARD MC JUNKIN: And it's also being recharged.

SPEAKER: Pardon?

RICHARD MC JUNKIN: The source area is not

remediated. The source area, for example --

SPEAKER: Well, we all know that there are faults that run right under Rocketdyne, and the whole area is fractured.

RICHARD MC JUNKIN: That's correct.

SPEAKER: I mean, this whole are, the soils don't stick together. They don't hang together. And we know that there are faults running through (inaudible). If you have perchlorate -- and not only perchlorate, because perchlorate is only the tip of the ice berg.

If you have all these toxic chemicals sitting up on Rocketdyne, how do you know that when it rains -- and we all know that when it rains in California, you know, it doesn't rain here very often, but when it does -- why hasn't this washed down through the cracks into the deeper groundwater and moved?

RICHARD MC JUNKIN: That's still being investigated. When you stepped up we were talking about perchlorate, and these are only on the north side. We haven't done this work on the Ahmanson Ranch side.

SPEAKER: But you're only testing 2-feet deep. The

reds and the blues are all only 2-feet deep?
RICHARD MC JUNKIN: Well, the reds out in the valley are from water wells; but bluish circles, those were in silty sands and the river channels, stream

channels and those went down 18 inches to 2 feet. But, once again -- see the source area, every time it rains, still today, one of our objectives here is to sample some of the runoff if it would rain. We're standing by.
SPEAKER: Right. I know. My plants are waiting for that.
RICHARD MC JUNKIN: But the theory that we're going by is that every time it rains it keeps bringing down perchlorate. Now, you might say yes, it is less perchlorate now that --
SPEAKER: But they're not using as much now and they aren't dumping it down on the ground like they used to either. I hope.
RICHARD MC JUNKIN: Well, it's still on the ground.
SPEAKER: But they're not dumping more. It's not laying out there in mass, so you're bound to get less even if --
VICKI ROSEN: Ma'am, you've got a line of people in back of you. I'm sorry. We need to get to everybody.
SPEAKER: No, no. If you're only testing 2-feet deep, you're missing the point.
VICKI ROSEN: I suggest that -- can you two get together after this and discuss it in greater detail because you obviously have some other things to say about her assumptions and she has concerns about what

you're telling her?
RICHARD MC JUNKIN: It's a complicated subject.
SPEAKER: I'm Bonnie Klee from West Hills, and I'd like to ask Gerard to look at the visuals again on Happy Valley. I'm not sure exactly where that is in relationship to Sage Ranch, the old trap and skeet range.
GERARD ABRAMS: Well, Sage Ranch is this area right here.
SPEAKER: Do you have the visual that showed where you had the perchlorate hits on it? It was a little bigger.
GERARD ABRAMS: I'll see if I can find it.
SPEAKER: And you talked about a gun range. Is that the old trap and skeet range that was built up there.
GERARD ABRAMS: No, I wasn't referring to that trap and skeet range.
SPEAKER: How close is that to the test site for the engines?
GERARD ABRAMS: Well, this is Happy Valley right here; the trap and skeet range is here; this is the property boundary right here; this is Black Canyon Road. So the Sage Ranch is located here, and the trap and skeet ranch was there. The rocket testing occurred in

this area, in an area called canyon -- in an area called Boe. These were some of the early rocket test stands.
SPEAKER: So it's actually very close to the main guard gate up at the top.
GERARD ABRAMS: Yeah, it's pretty close. The guard gate is right here.
SPEAKER: Okay. Are there any major streams that run into West Hills, like Dayton Creek?
GERARD ABRAMS: Yes. That's this drainage right here. This is the drainage that goes into Dayton Creek, right down this way.

SPEAKER: How about drainage into Chatsworth Lake?
GERARD ABRAMS: You know, I'd have to look at a topographic map to see how that drainage flows. Once it goes down into Dayton Creek and down into the Chatsworth area, I'm not sure how that surface water flows.
DAN HIRSCH: A quick response to you, just so you know, the place where the Regional Board has reported most of the surface runoff leaving the property is from Happy Valley going down to Dayton Canyon.
SPEAKER: Well, that doesn't go into Chatsworth. That would go into Bell Canyon, wouldn't it, in West Hills?
GERARD ABRAMS: No. Here's the point where the surface water is occurring, where the monitoring point

is. So the 12 detects over the past three years is right here, so it's about 1200 feet from this property boundary. But this Area I road -- let's refer to this as Area I road. This drainage here goes down into Bell Canyon; this drainage goes into Dayton Canyon.
SPEAKER: Okay. But there's a really big stream that runs through Orchid Ranch, which is right off of Bosco and is very close to Valley Circle. Do you know what river that is or what stream that is that runs through that property?
GERARD ABRAMS: You know, I'm not sure. I'd have to look at the topographic map and look at the drainages and see how that works.
VICKI ROSEN: Can you two get together after this and discuss these details? We have to move on. The people who are in line now, we have five minutes.
SPEAKER: Thank you.
VICKI ROSEN: Thank you very much.
SPEAKER: Hi. My name is Vin Sidley, and I live in Chatsworth. And how I got to live in Chatsworth is I worked for Rocketdyne. I worked in CTL3, which is over near the Ahmanson Ranch. And he pointed out a while

back that your rocket engine igniters were -- we called them hyperboe, by the way. And what they did is they went into the fuel line and would leave fuel and fire

would come out the tube and you'd start a rocket engine that way with a fuel lead.

Anyway, point being is that CTL3 and CTL4 had perchlorate, which is over near Ahmanson. It's probably still in the ground, maybe ground seepage. You're talking about runoff. Well, yeah, you got runoff. But what about ground seepage when it's in the soil? Where's that going? That's going down in the fishers and it's going into groundwater. And groundwater will percolate out to Ahmanson Ranch and in places like Simi Valley.

My wife told me when I quit Rocketdyne it was the best thing I ever did because I didn't get cancer like the rest of the people that I worked with up there. But there's a whole lot of people at Rocketdyne not living today because of the chemicals used.

You just saw the space shuttle landed down there, and they told people not to touch the parts. What was on those parts? It was bad stuff. Work fuming nitric acid and red fuming nitric acid were the word of the day up there at CTLs. Okay? We used to vent (inaudible) and it would go towards Ahmanson Ranch. We wouldn't have done it to the cows, but we killed cows.

But when it goes towards Ahmanson, somebody's going to breathe that air and did. How many did we give

cancer to down there? Of course, we were in a race with

the Russians and anything was an excuse at that time. But, you know, today it's coming to bear.

I live in Chatsworth. I live at the fringes of Worthy where we're picking up the radiation from the blowup on the hill. It slowly extends over to Canoga. But we're exposed to it today. And I was up there in '62; that's a couple days ago, you know.

But, anyway, to say that it's not percolating down from the groundwater and it's just runoff is nonsense. It's sheer nonsense because you could probably go over to CTL3 where we used to start the X-10 engine over there and you would probably find it right in the soil there today. I don't know.

Have you done any soil samples at CTL3 or CTL4?

GERARD ABRAMS: Quite a bit.

SPEAKER: Have you? Okay. Go to where the X-10 engine was because we started that dang thing with hyperboe. And hyperboe is your rocket engine igniter.

VICKI ROSEN: Sir, thank you.

We probably have time for one more person.

SPEAKER: My name is Tom Slauson. I'm an engineering geologist, and I live in Simi and also have been working on the Ahmanson Ranch for the City of Calabasas. I just recently picked up a copy off the

internet of "Application of Advanced Geophysical Logging Method and the Characterization of Fractured Sedimentary Bedrock Aquifer of Ventura County" -- I know it's boring -- March 2002.

One of the key things they talked about in here, and it's all done basically on the Rocketdyne site, is that most of the water is moving through the fractures, which on the Rocketdyne site itself are .1 to 3.8 inches wide. That's where the water is moving through. And it's moving through the 201-feet, 300-plus feet plus or minus. It's not moving to the bedrock.

Looking at the logs in here, there's a lot of

connection to the direction of Ahmanson because some of those fractures are dipping into the south, especially the ones with the 300-foot -- we have a connection with water. The well itself that's on the Ahmanson property, at the depth where the perchlorate came from is basically within the Chatsworth formation (inaudible) that was done in the past at the 550-foot depth.

Additionally, that water has a completely different water chemistry makeup than the water at 550 and 450. And you got a pretty near connection in addition to that that's right along that same contact. You've got a line of springs that are coming from that Chatsworth formation, Topanga formation contact and

coming out of the springs.

There is a direct connection as far as the groundwater moving through the fractures. It will move through those fractures a heck of a lot faster than it does through the bedding to the north. Most of it will move towards the south, at least according to this document and the things I've seen.

So there needs to be a little more work done. I studied the test results; I studied the well log for the Ahmanson. And I've never seen the other set at 550 feet that was done. I don't know who did it. I only saw the one that SCIR did. But, again, that's the only one with perchlorate; that's the only one with a couple of other interesting minerals; and it's also the one with a totally different water chemistry. So questions need to be answered.

VICKI ROSEN: Thank you.

How long are you going to take, Ma'am? Can you do it in 30 seconds?

SPEAKER: I'll try.

VICKI ROSEN: Okay. We can stop with you, and you're the last one.

JERRY RASKIN: We're doing all this for the

community and for you to keep interrupting, I think it makes it difficult.

VICKI ROSEN: Jerry, I would really like to have more time for the community, as well.

JERRY RASKIN: Well, then let's give them more time.

VICKI ROSEN: But we have one more presentation and it's already 9:20.

ROBERT GREGER: Vicki, is it possible for us to put off the EPA presentation to another meeting and allow the public to continue?

VICKI ROSEN: We actually brought people specially here for this presentation, so we have to do that tonight.

Yes, ma'am.

SPEAKER: Okay. I have a couple questions. Do they still test the rocket booster for the space shuttle up there at the NASA site?

VICKI ROSEN: No.

SPEAKER: That's over with?

GERARD ABRAMS: No, they don't do that.

SPEAKER: When did they stop?

SPEAKER: 1988.

SPEAKER: Who said that?

SPEAKER: I did. It was in 1988.

SPEAKER: Well, a year ago I heard a sound, which sounded like a jet engine, and then I saw a dark cloud

that went up over my house. That was last year.

SPEAKER: We test rocket engines; we don't test the

space shuttle engines.
SPEAKER: Okay. So you're still testing rocket engines for the space shuttle?
SPEAKER: No, not for the space shuttle program. It's different.
SPEAKER: Okay. Because that was one of my questions -- is perchlorate coming from that? And should I just directly ask you because --
VICKI ROSEN: We'll direct it to whoever can answer.
SPEAKER: Okay. What is the health risk from perchlorate?
VICKI ROSEN: Jonathon.
JONATHON PARFREY: There is a fact sheet that's available.
SPEAKER: Well, just tell me.
JONATHON PARFREY: It affects people who are most vulnerable, and that would be fetuses in utero, small children, the elderly, and people with immune deficiencies. The perchlorate attacks the thyroid, and it can result in -- especially with a pregnant woman -- it can have terrible damage to the mental development of the developing fetus.

PAULINE BATARSEH: Jonathon, can you expand on this based on the samples that were collected in Simi and potential exposure route? We've been checking -- DHS -- the drinking water. Folks checked for perchlorate in drinking the water, and to our knowledge nobody is drinking the water, right?
JONATHON PARFREY: If no one is drinking the water, then the likelihood of that being a path of exposure is pretty minimal. It's an interesting situation in the Inland Empire area where there's a considerable amount of development that's taking place there. But a number of their wells in the Rialto/Colton area, the Redlands area, they cannot use their groundwater in construction

because the perchlorate in their groundwater would become airborne and it could affect them as a path of exposure.

So right now, today, I don't think that there are people drinking the water from the wells. That's the data that I've seen from you. But that's not to say that sometime in the future, if there is indeed some perchlorate contamination, that water could be used either in drinking water or for other uses. That could pose a problem.

PAULINE BATARSEH: Yes. The concentrations would be tied to the source, and with time they would decline;

correct? You don't expect the concentration to increase more than what we have detected since the source for samples -- if you are saying that it is Santa Susana -- because that actually has been cleaned up and we're doing some work up there; correct?

JONATHON PARFREY: I cannot even conjecture on that. But you brought up an interesting point, which is perchlorate may be sort of a precursor sort of chemical that could be found in the soil. And it may be somewhat foreboding that there's -- like, let's say there's this huge plume of trichloroethylene, there's 1.7 million gallons of TCE that would be used up at the site; and they conjectured that up to 50 percent of that went underground. And I know that your agency is now trying to characterize exactly where the TCE plume is --

PAULINE BATARSEH: Yes. This is the major part of our investigation, and we're looking at that very closely. I really appreciate your candidness in giving out the information on perchlorate and health risks because it's important for everybody to understand the exposure route, as well.

JONATHON PARFREY: Well, I think people should realize that drinking water from the Colorado River today could put them at risk because there's perchlorate

25 in the Colorado River water. But that's not to say that

1 nothing is ever going to happen in Simi because of
2 perchlorate.
3 VICKI ROSEN: Thank you, Jonathon.
4 Can we go on to the next person, please. And,
5 Matt, please --
6 SPEAKER: I'll be brief.
7 VICKI ROSEN: That's what everyone says, Matt.
8 SPEAKER: Well time me, Vicki.
9 My name is Matt Damien. I'm a former senior
10 scientist for EPA Region 9 in San Francisco. And a
11 company, Com-ex, prepared a report that was delivered to
12 the Ventura County Board of Supervisors on December 17th
13 and provided the basis for testimony by former
14 (inaudible). The report comes to me in the same
15 conclusions that Dan and Ali came to, and I want to go
16 through those because we've heard them more than once.
17 But I will say that the final conclusion that we
18 came to was that at the point of decision where the
19 supervisors had to decide whether they had enough
20 information to approve the development in the Ahmanson
21 Ranch area, we said until investigation reports are
22 completed, the vertical and horizontal extent of
23 perchlorate contamination in the vicinity of Well No. 1
24 will not be known, and the consequences of exposure to
25 the contamination cannot be quantified.

1 An agency-approved program to locate, sample,
2 evaluate, and re-condition of groundwork qualities in
3 our resources at the ranch, as well as a more thorough

consideration of the regional perchlorate extent is required to fully characterize groundwater conditions.

So I'll just leave you with that conclusion and to say that the report is available to anybody who would like a copy.

VICKI ROSEN: Thank you, Matt.

And, ma'am, you were up already and we have to go to --

SPEAKER: I just have a couple of questions.

VICKI ROSEN: Well, we --

SPEAKER: No, no, no. Why aren't you using the techniques that the oil exploration people have used forever? They make like a 3-D grid of the channels under the ground. Why don't you do that?

And another thing is you are pumping several hundred thousand gallons of water trying to keep this stuff underneath Rocketdyne, and that, I would see, as a pathway to suck stuff back. You're pumping and running these big pumps up there, so if you have chemicals that have gone off -- I mean, I'm not very smart, but it seems to me that if you're sucking, then the stuff out there is going to come back.

VICKI ROSEN: Thank you. And it would be good if maybe you guys could get together after the session and talk about this in greater detail.

Now we're going to go on to Larry Bowerman of EPA, report on the Building Decontamination and Decommission Verification Surveys that EPA did.

Larry.

LARRY BOWERMAN: Thank you. Again, my name is Larry Bowerman. I'm with EPA Region 9 in San Francisco. I want to talk a little bit about some work that we've been doing at the site for over the last four years or so. Before I get too far into this, I want to point out that copies of our presentation slides are available at the front table. Many of you may already have them. We

also have a question-and-answer document that provides some more detail about some of the work that we did and exactly what the results of that work were.

I'd also like to have Bob O'Brien who is with TetroTech stand up and introduce himself. TetroTech did a lot of the work for us in this project.

SPEAKER: I understand I'm allowed one minute. My name is Bob O'Brien, and I work for TetroTech for the EPA. I've been involved in the Rocketdyne project for roughly a year and a half. I started in about June of 2001. And prior to that time I had about 20 years of

experience working for the United States Navy in their Navy Radiological Control Program.

Thank you.

LARRY BOWERMAN: Thanks, Bob.

I'll try to breeze through some of these slides because we're running short on time here. The list of the topics that we want to cover in this presentation tonight, we want to explain what is the Building Decontamination and Decommissioning Program at the SSFL; why is EPA involved; what constituted EPA's independent assessment; and what did we find during that assessment.

Next slide, please. This is some background information on just some of the highlights. The third bullet indicates that nuclear operations were conducted at the site in Area IV of the SSFL between the early 1950s and 1988 when that work stopped. Since that time, and actually even before that, in the mid 70s, Boeing and Rocketdyne, under EPA's direction, has been conducting decontamination/decommissioning of many of the buildings on the site where nuclear work was done or nuclear materials were stored.

Next side, please. Again, DOE uses the building decommission and demolition process to characterize cleanup, if needed, and release from regulations buildings or land where radiologic materials were used

or stored. And DOE is responsible for the cleanup of any radioactive contamination at the site before releasing facilities from its regulation. And the process -- the D & D process used by DOE involved multiple radiological surveys by Boeing, a contractor for DOE called ORISE, the Oak Ridge Institute for Science and Education, and in most cases by the California Department of Health Services.

This slide is kind of a brief description of the process that DOE uses to go through to decontaminate and decommission buildings. Again, the main steps here are they perform the initial survey to determine whether there are any areas that need cleanup; they actually do the cleanup; and then they go back and perform confirmation surveys to compare the residual radioactivity levels with the applicable standards. And if those levels of residual radioactivity are below the standards, then the buildings can be released for unrestricted use.

Next, why was EPA involved or why is EPA involved in this? Back in 1996, several members of the community asked EPA to perform an independent technical examination of Boeing, and DOE decontamination/decommissioning activities at the Rocketdyne SSFL.

At that time, the primary concerns and issues expressed by the community were with the previous surveys -- did they sample in the right places; were the original measurements accurate; would EPA's independent interpretation of that data produce any different

conclusions; and, finally, are any workers in these buildings being exposed to unacceptable radiation risks because the applicable standards are not being met?

In a letter to the community members dated November 8, 1996, EPA committed to conducting a radiological verification survey at three buildings to address the community concerns.

Next I want to just briefly talk a little bit about the regulatory authority. DOE is the responsible agency for overseeing building D & D at the Rocketdyne SSFL. Department of Health Services provides oversight of decommissioning activities at other buildings. And while DHS has no direct authority to regulate DOE's authority, DOE has asked DHS to concur on all buildings prior to releasing them for other uses. And EPA does not have legal authority over the Building D & D Program at the Rocketdyne SSFL.

This is an area that is outside of EPA's usual area of authority. EPA's work generally focuses an preventing or cleaning up releases to the environment,

not on the amounts of residual radioactivity levels on building surfaces, which is what the Building Decontamination and Decommissioning Program is about.

At this particular site, we were involved here under a special set of circumstances, namely a request from the community to provide an additional level of oversight of this process. EPA's assessment had two primary goals: First of all, it was to provide an additional level of oversight to address community concerns about whether or not the previous surveys were accurate in representative.

The second goal was to assess whether previous Rocketdyne surveys were accurate to determine whether the buildings met the applicable standards that DOE uses to evaluate residual levels of activity, and to determine whether or not it's appropriate to release

those buildings. As I mentioned earlier, EPA has hired a contractor, TetroTech, to review previous decommissioning survey work plans and final survey reports for 11 buildings. And they also conducted verification radiological surveys, including field measurements and laboratory analyses and samples for 8 of the 11 buildings.

EPA has reviewed TetroTech's findings and recommendations about the D & D work performed by Boeing

and Rocketdyne for DOE. EPA -- this work really addresses radiologic issues only and it did not address the adequacy of DOE standards since they use -- the standard is called "Nuclear Regulatory Commission Regulatory Guide 1.86." Evaluating the adequacy of the applicable standards was outside the scope of this investigation, and EPA was not involved in establishing the NRC Reg Guide 1.86.

This is a map showing the buildings where EPA did its survey work here. The main point is that most of these buildings have already been released for unrestricted use. There are a couple of exceptions to that. Buildings 19 and 59 have not yet been released for unrestricted use, but all the others have.

The first part of our oversight work involved reviewing documentation of previous surveys. The purpose of that was to evaluate the completeness of the previous surveys; whether or not the sampling was done at the right locations; and whether the survey supported the conclusions reached.

It's important to note that the evaluation of previous radiological surveys considered the practices that weren't always used within the industry at the time they were performed. And the evaluation considered such things as reliability and sensitivity of instruments,

frequency and rigger of measurements and calibration programs, the representativeness of the sampling locations, the level of detail and whether the text of the data tables were consistent, and the general completeness of the documentation.

The actual verification survey that EPA did of 8 of the 11 buildings, the purpose was to evaluate and supplement the existing data -- in other words, the data collected by previous surveys done by Boeing and DOE's contractor. The oversight surveys were designed to meet data quality requirements of what we call our MARSSIM guidance, which is the generally accepted protocol on how to conduct these surveys.

The kinds of things that were taken involved handheld instruments; we collected some core samples and some wipe samples of removable material. The locations that were sampled were selected based on previous survey data, professional judgment, and at random to some extent to evaluate comparability of previous surveys -- sampling some areas that might not have been sampled in previous surveys and to provide data confirming the areas previously surveyed.

Since these were oversight verification surveys, they weren't complete resurveys of the buildings. The TetroTech survey showed approximately 20 percent of the

building surfaces, whereas the original surveys conducted by Boeing and Rocketdyne and DOE's contractor surveyed up to 100 percent of the building surfaces.

An EPA representative was on-site overseeing TetroTech during these verification surveys and, in many cases, community members observed the verification

sampling. And in some instances, they actually selected sampling locations where some core samples or wipe samples were collected for further analysis.

Next we have a few pictures of some of the work that was done during these surveys. This is a picture of Building No. 19.

Next, please. This next picture is a picture of a couple of the survey instruments. These measure gama radiation.

Next. This is a picture of a person doing a survey -- scan survey of a grid area on the floor of Building No. 19 using an alpha beta scintillation detector.

This is a picture of a couple of Rocketdyne employees collecting a concrete core sample as part of this effort on the floor of Building No. 19 at a location that was selected by TetroTech and EPA.

This next picture is a picture of an actual concrete core sample. This particular picture happens

to be of a sample at a location that was suggested by Dr. Plotkin in Building 19.

This next picture is a person photographing an area where a wipe sample was conducted. This is in a ventilation duct in Building No. 19.

Okay. What were the results of EPA's surveys? Essentially, we found that the previous surveys sampled in the appropriate representative locations. We found that the measurements made in previous surveys were accurate. The EPA concurs with the conclusions made by DOE and Rocketdyne about the locations and levels of residual radioactivity left in the buildings that were surveyed; and that based on this information we have that the residual radioactivity in the buildings does not exceed DOE's applicable exposure levels for unrestricted release, as specified in NRC Regulatory Guide 1.86.

In other words, we found essentially what they found when they surveyed these buildings. We didn't find anything that they didn't find in these surveys, and there were really no surprises. In summary, EPA has concluded its review of the decontamination and decommissioning documents and its verification survey work of the eight buildings. EPA originally committed to surveying three buildings, but in actuality we ended

up surveying eight buildings; and we reviewed documentation for those eight buildings plus three additional buildings.

The past releases from buildings were investigated as part of the D & D, but in addition, the upcoming EPA Area IV Soil Survey will provide another check on whether or not there were possibly releases to the environment from any of these buildings.

A little bit more detail -- the project was a pretty substantial effort by EPA that lasted about four years. We ended up spending about $450,000 in contract money over this four-year period. I'd also like to point out that Gregg Dempsey from our Las Vegas lab was involved in reviewing the reports, and he had several suggestions and those suggestions were addressed in the preparation of the final report.

And then, finally, the public was involved at key points in this effort. Mainly, they were the originator of the request in the first place back in 1996. They had an opportunity to review the various work plans for this work and to observe the survey work. And, as I mentioned earlier, they even selected a few of the sampling locations.

Thank you very much.

VICKI ROSEN: Thank you, Larry.

Now, do we have some comments or questions from the Workgroup members?

DAN HIRSCH: I have a few.

VICKI ROSEN: I thought you might.

DAN HIRSCH: If I could get Slide 7 again, please.

LARRY BOWERMAN: And just one other comment. The reports on all of this work are available to anyone who is interested in them. They are fairly voluminous. They occupy about 900 pages worth of material, but they are available if anyone is interested in looking at them.

SPEAKER: Where?

LARRY BOWERMAN: They are available at our EPA Region 9 offices and they are available, I believe, in the repositories.

VICKI ROSEN: Have they been sent to the repositories? I believe they should be. There is a list out front that lists where our repositories are located, and there are people out there that can help you find them.

DAN HIRSCH: Okay. We only have 15 minutes left. I'm going to try to be very brief. I'm not going to discuss any of the problems I have with the measurements. They are significant and voluminous, and we just don't have time to deal with them. I'm going to

deal with the one central concern that should concern you members of the community.

We had wanted EPA to come in and determine whether or not the radioactivity that was left in those structures was safe. We weren't so interested in what met DOE standards. We didn't trust that DOE standard. We wanted to know if it was safe. The operable sentence in the entire presentation you heard from Larry is that

second bullet: They didn't address the adequacy of DOE's standards for residual radioactivity, which is this NRC Regulatory Guide, 1.86.

That regulatory guide is this. It's five pages. It is close to 30 years old, and it was never based on any kind of safety. It was based on what was easy to measure 30 years ago. So EPA several years ago presented some data here that I wanted to show you and then expand on for a moment, which should answer the question -- should you feel relieved when they tell you they believe that the contamination levels in these buildings are below these levels?

We asked EPA to estimate what the dose would be if a facility met the standard. And for two isotopes that we will use as an example -- thorium 232 and plutonium 239 -- EPA, not me, estimated that the dose -- oh, yeah, you can't see it.

Thank you. Very good. Thanks.

Two isotopes -- thorium 232 and plutonium 239 -- they ran one DOE model and one NRC model. They estimated the thorium at 45 millirem per year dose. That's the equivalence of about 225 additional chest X rays over your lifetime. That's what they're declaring would be safe.

The estimate of the risk using all the government's figures is one in a million, and that means 10 people will get cancer per 10,000 people exposed. And that is outside the generally acceptable risk range that EPA uses for cleanups. It's 10 to a thousand times higher in that risk range. Now that's for thorium.

For plutonium it's about 7.8 millirem. Again, it's about one and a half cancers per 10,000 people exposed, about 40 chest X rays, equivalence -- although it's internal; it's not quite the same -- it's still outside the normal risk range. But when I asked for the assumption that they were using to make these

calculations, they assumed you were only in the building eight hours a day and only 250 days a year. They assumed that it was for a restricted occupational use.

But they are telling you they want to release it for unrestricted use. And EPA requires the event to take the unrestricted figures, which are EPA's default,

which I don't use -- yes -- produced 130 millirem per year. Just using their own numbers, it adds up to about 650 chest X rays over a lifetime; a cancer risk of 2.6; meaning that 26 people would come down with cancer if they did it the right way, if they cleaned it up appropriately. And that's, again, way outside the acceptable EPA risk range.

One other thing they did with the assumption, they only assumed one surface was contaminated, the floor, and that the rest of it was clean. So a lump estimate of what would happen if you assumed, using their own assumptions, their own model, but that in fact this was for unrestricted use and that all the surfaces were contaminated, it would be something around 650 millirem per year, which is a risk of 1.3 cancers per 100 people exposed. It is 130 times higher than the outside of the EPA risk range and 13,000 times higher than their normal one in a million risk.

So whether or not the measurements were done right -- and there's not enough time for me to tell you my troubles with the measurements -- if the measurements were right and even if it was only a small fraction of these Reg Guide 1.86 levels, they would be permitting people to get doses that are way outside what EPA would ever permit from other kinds of exposures.

So we just spent $400,000 to determine whether or not the facility meets the DOE standard, but the DOE standard is completely unacceptable in terms of public health risks and way outside the EPA acceptable risk range.

The worst part is that when the buildings are torn down, the materials are then released. They are sending the stuff out and having to pass the landfills and (inaudible) to schools and farms. And none of these models figure what the dose would be if in fact you did absolute; these models are based on what happened if you were sitting inside, not if any of it gets into soil air, or water. So the true risk in having release these things could be horrendously worse.

One last comment -- and, again, a lot of concerns about the way this was done -- but what Larry forgot to mention when he said that they initially planned to do three buildings but did 11 buildings instead -- well, they originally had planned to do five at the outset. When they got out to the site, Rocketdyne had torn down half of them before they got to do the measurements.

And the buildings I'm most interested in, they tore down a few weeks before EPA could get there. The FRE building, which is where the meltdowns occurred,

they tore down a few weeks before the EPA contractor arrived. So if you have questions about why we're concerned about the actual measurements, talk to us. But just know that the standards that they spent several years checking to see if it meets, would produce risks that are completely unacceptable to any other EPA circumstances, in fact in this circumstance.

Thank you.

VICKI ROSEN: Thank you, Dan.

Do we have any other comments?

SHELDON PLOTKIN: I guess while Dan is concerned with the standards, I'm concerned with the measurements and what they are measuring. As you well know, the sample that was shown on the slide that I picked out, supposedly -- well, I did pick it out -- I tried to demand as hard as I could at the time that they take that kind of sample at the bottom of the pit that was there.

The one slide that showed a big yellow cover -- it wasn't yellow when I was there -- but at any rate, that's the cover to the pit. This is a snap reactor test building, and they've got a pit that's approximately 15 feet in diameter and 30 feet into the ground. And when they test a snap reactor -- this is a reactor they are developing for space -- and these space

nuclear reactors, when they are tested they go to the bottom of the pit and run up to power.

They are put in the pit because if something happens, there's some kind of protection. Now, the point is that in that building, if there's any kind of contamination at all anywhere, it will be in the bottom of that pit. So -- and if there's no contamination in the bottom of that pit, then there's no reason to do all the work that they did in the rest of the building because there wouldn't be any contamination.

I requested they go to the bottom of the pit; they didn't. Now, one of Larry's slides up there, you said that the reason for your being there -- EPA and TetroTech -- is because of community concerns. Well, as a community representative, if I've got some kind of a concern, then a community's got a problem. And I'm concerned about the bottom of that pit.

On page 5 of your question-and-answers, you address the issue of why you didn't go to the bottom of that pit and take measurements. And one of the reasons down there has to do with -- "At this time safety

regulations prevented sampling of the Building 19 reactor vault."

Just a question: Did you by any chance have a licensed safety engineer in your team?

LARRY BOWERMAN: I'm not sure whether we did or not. We've discussed this issue a lot, Sheldon, and --

SHELDON PLOTKIN: Well, I went to air this in front of the public. And either you did or you didn't have a safety engineer that told you about the safety of --

LARRY BOWERMAN: Well, it's a confined space situation. We know that whenever you send people into confined spaces, you have to have the appropriate health and safety plans and take the appropriate precautions to make sure that someone doesn't die while they are down in that hole where there may not be enough oxygen.

SHELDON PLOTKIN: Enough oxygen in this pit? Come on.

LARRY BOWERMAN: We've discussed this many times with you, Shel.

SHELDON PLOTKIN: Well I want to discuss it with the public because they need to know --

LARRY BOWERMAN: There are three or four reasons why we didn't survey it. First of all, the vault had been surveyed three previous times, and during all of those three surveys, there were no --

SHELDON PLOTKIN: But the reason you're there is because the public doesn't trust the other three measurements that were done. That's why you're there.

LARRY BOWERMAN: Well, right, and our survey work

indicated that the previous work was of acceptable quality.

SHELDON PLOTKIN: But you didn't test anything at the bottom of the pit, and we need to address that rather specifically.

LARRY BOWERMAN: I'm trying to.

SHELDON PLOTKIN: You need to examine and take measurements at the bottom of that pit. It can be very easily done.

LARRY BOWERMAN: Nothing that we've seen in the records indicates that there were operations or accidents in that particular vault that would warrant another look.

SHELDON PLOTKIN: I think the community has other evidence that maybe you don't have.

LARRY BOWERMAN: When we got there on-site, there were practical logistical reasons why the sampling could not be done because of the crane not being certified and not having the confined space entry plan.

SHELDON PLOTKIN: All right. Is there anyone in the room that's a licensed safety engineer? All right. Well, I am. I guess I'm the only one. So I can assure you that the safety regulations that you are arguing about are sheer garbage. If you'd like some help on how to safely take measurements and get core samples and

measurements to begin with, of course, and then, if warranted, get core samples, I can go over that with you and we can arrange for a very small number of people and very easily go down and do the work. Now --

LARRY BOWERMAN: Well, we can talk some more about this, but we don't see need the need for further --

SHELDON PLOTKIN: In the meantime, the community was approached by a worker who worked on snap reactors, and he is out of the state and the man is ill. But we got information that there were a number -- from him -- there were a number of snap reactor accidents up there.

And one particular accident had to do with cracked fuel rods. I thought at first it was a meltdown of the snap reactor, but after further questioning him, the fuel rods cracked and contamination was released from those cracked fuel rods.

Now, in order to get cracked fuel rods, things got to be hot. You've got to be running up the power. Where in the world in that entire facility will you run a snap reactor up to power but in the bottom of the pit? That's the place to do it.

Now, if you have cracked fuel rods from a nuclear reactor in the bottom of that pit, then the bottom of that pit is contaminated. And I will say it in front of God and everybody that I think that that

bottom of that pit is contaminated, radioactively contaminated, and that's the reason you're not -- and it's probably unsafe to even go down there.

JOHN BEACH: Sheldon --

SHELDON PLOTKIN: Now, in order to do that, the first thing you do is you simply drop a (inaudible) down there with a rope and a wireless microphone and see what it reads. And if you don't get anything, then you can go -- then it's safe to go down there and maybe take other measurements.

But, in the meantime, it's easily done just to drop a platform down there. They have an overhead crane. It's easy to drop a platform down there and take some sampling and do the measurements that are required. And the fact that they haven't -- and this is probably a contaminated area -- worries me and is very bothersome to the public.

JOHN BEACH: Sheldon, we understand why you would be concerned by a location where records were to the extent of cracked fuel rods. We do know where that happened. It happened more than once. It happened in Building 10 and in Building 59. It did not happen in

Building 19, the building in question.
SHELDON PLOTKIN: Well, why not humor me then and just make the measurement.

JOHN BEACH: As Larry said, we did a lot of measurements trying to confirm whether the previous surveys had measured what was there and --
SHELDON PLOTKIN: You're there because we don't trust the previous surveys. You are redoing -- I mean, just like your picture shows. Every square foot of floor space and wall space was wiped down and checked with a Geiger counter and a different radiation counters, et cetera.
TetroTech did a thorough job. I stood there and watched some of the sampling that they did, et cetera. And now you have this big pit down there, and you don't test a thing; and you say the previous surveys done by the other agencies was -- indicated you don't have to do that. And then this garbage business with the safety, another excuse, and there's a stone wall.
I mean, Arlene was very cooperative when it came to picking core samples in the storage room, like you showed on the slide; that was great and very nice. I also asked you to take sampling in the air ducts and so forth, and Arlene called in the Rocketdyne people. They were there and very cooperative, and they saw the hole in there and TetroTech took their measurements. But once I said, "Let's do something down at the bottom of the pit," all of a sudden there was a stone wall and

it's still here. We still have the stone wall.

ARLENE KABEI: Sheldon, thank you for the support, but I wasn't involved with this project at the time. It was not me.

SHELDON PLOTKIN: You were there and you told me that it was unsafe to go down --

LARRY BOWERMAN: No. I think that was Cathy Baylor from the office that was there. It was not Arlene.

VICKI ROSEN: Okay. We're going to Rob and then to Mike.

Thank you, Sheldon.

LARRY BOWERMAN: With regard to the standard -- we certainly understand that you might have some concerns about whether or not the standard is an appropriate standard. But, as I indicated in my presentation, this is an area that is outside of EPA's regulatory responsibility and authority.

If you have concerns about the adequacy of the standard, this is a standard that was adopted by the Nuclear Regulatory Commission. And the authority to implement in this particular case is the responsibility of DOE and the California Department of Health Services. If you want to talk to them about it, that would be fine. But I'd also like to point out that Congress is the body that developed the laws and assigned

authorities to who has authority to cleanup what areas. So if you think that there needs to be a change, maybe discussions with your elected representatives would be appropriate.

DAN HIRSCH: Very quickly. I think that's a good suggestion to talk to the officials, but I must correct you. Under the law you are supposed to enforce CERCLA requirements under the '95 Agreement between DOE and EPA. All DOE facilities are supposed to be cleaned up under CERCLA. And it's under your own rules that if the building can potentially have a release, then it has to meet your CERCLA guidelines.

VICKI ROSEN: Okay.
DAN HIRSCH: We'll discuss that next time.
VICKI ROSEN: Okay. Rob and Mike.
ROBERT GREGER: Thank you. Maybe I can comment a little bit on Mr. Plotkin's concerns. I've been in the inspection business for many, many -- too many years -- at least 30 years now. I stopped counting. One of the things one knows as and inspector is that you cannot do 100 percent duplicate testing of anything because you simply don't have the manpower to do it.

We see that EPA spent half a million dollars to go out and find out that what Boeing did, apparently, was exactly what they said they did. So what an

inspection agency does is does sampling. And you sample so many -- a certain percentage, and you look to see whether the results you get when you do those surveys differ from the licensees.

If they do not differ from the licensees, you lower the number of samples that you need to take to gain confidence that the licensee did a good job. If you find disagreement, you increase that percentage. What I'm hearing in this case is that there were no disagreements. The fact that EPA did not sample one area, in my view, would be wholly justified because they found agreement between their samples and Boeing's samples on all the other samples they tested. That's just a basic of inspection technique.

Now, I would like to just comment real briefly on a couple of statements Mr. Hirsch said. His use of predictions of cancer deaths is wholly unjustified for low-level radiation. Mr. Hirsch has had reference of National Academy of Sciences on many occasions and their Bureau Committee. And the Bureau Committee says that at natural background levels -- within the range of very natural background in this country, there's no evidence, no conclusive evidence of any link between cancers and

radiation.
SPEAKER: What?

ROBERT GREGER: Within the range of normal background -- I have the quote here from the Bureau Committee, and I'll be more than happy to share it with anyone that wants to look at it. The Health Physics Society has also said that at low exposure doses -- and those low exposure doses by the International Health Physics Society, which has over 1500 professional health physicists, scientist members -- it says that for doses of less than about 5000 millirem or 10,000 millirem, lifetime over background doses, that it is inappropriate to predict cancer based on those low doses of radiation.

We will probably get into this in much more detail at the next session, and we can talk about it then. I have a couple other real quick comments. I notice that the calculations that Mr. Hirsch put up there that were attributable to the EPA are using to enumerate the 1500 document, which has been superceded many, many years ago.

There have been many developments in the field of health physics in the intervening period of time. Most recently, there have been studies that have shown that the waiting factor for tissue has decreased by a factor of three, which means the dose is decreased by a factor of three for the same contamination levels. This is for all (inaudible) which includes the two new

clients that Mr. Hirsch referenced.

The biokinetic model, which is how thorium

interacts in your body once it gets in there, that model has been changed by the International Committee of Radiation Protection. And that has reduced the -- I'm sorry -- increased the allowable intakes by a factor of between 10 and 20, and therefore reduce the doses from a certain intake by a factor of 10 to 20.

One of the other things that Mr. Hirsch did, which he did acknowledge, is he assumed that the entire building surfaces were contaminated uniformly at the Reg Guide 1.86 values. I've been involved in many, many, many building surveys for decommissionings and our agency and our branch has been involved in many, many more. I don't think -- well, I'm sure we have never ever found a situation where the entire building surfaces, even all the floor surfaces, are contaminated at those levels.

It would be an overstatement to say that they are contaminated at 10 percent of those levels. So if I added a factor of 10 on for the average contamination, I won't even use the 20 for thorium, another factor of three, that's another factor that got me up to 1000 right there -- well, I disagree with Mr. Hirsch's presentation and would be more than happy to talk to

anyone afterwards or respond to Mr. Hirsch.

VICKI ROSEN: Thank you, Rob.

Mike.

MIKE BROWN: I'd like to also direct my discussion to a couple of Mr. Hirsch's comments. One is the applicable standard -- the health effective standard is the Reg Guide 1.86 for decontamination and decommissioning activities. In my understanding, there is no applicable EPA standard for these particular activities. It's considered to be health protected. I also agree that it is 29 years old.

However, in 1999, the American National Standards Institute evaluated this particular Reg Guide

and found it to ensure those rates of less than 2 millirem per year, if it is followed. In addition it should be noted that the D & D, decontamination and decommissioning, activities at Rocketdyne followed the ALARA process as low as reasonably achievable. And in most cases, we were able to reduce the overall contamination by as much as a factor of 100, and in almost all cases by a factor of 10 from that Reg Guide number.

So I guess the statement of risk that was presented by Mr. Hirsch, I felt did not characterize the true risk from the facility and it overstated and may

have been somewhat alarming.

DAN HIRSCH: Let me respond to --

VICKI ROSEN: Wait just a second. I want to make sure that anybody from the public who wants to comment on this -- we actually have to vacate the room, but I would really like to be able to do that.

So, Dan, go ahead and say something very quickly, but keep in mind that we want these people to be able to speak.

DAN HIRSCH: Right.

Absolutely flabbergasting. I hope that there are state legislative officials still present. You simply had a representative of a state agency who expressed direct personal hostility to the regulations he's supposed to be enforcing.

There isn't a single regulatory agency in the world who has as it's official policy the position Mr. Greger just told you. Every single regulatory agency and the National Academy of Sciences says that as doses get lower, the risks get lower. But there is no threshold whatsoever.

The estimates that I showed you on that table are not my estimates of risk, but the National Academy's, EPA's, NRC's, and the Department of Health

Services own official risk estimates. I think they are

low by a factor of 10. The DOE says that they think that these standards are protected.

Well, your problem then is with EPA because EPA did those calculations. And they used, not the new reg for this, they used DOE's own (inaudible) bill. And I reran that just a week ago using the most recent version of the model. It comes out to the same number.

And the whole point -- just to hear a regulator get up and say that radiation doses are absolutely safe -- then why are we paying a salary to protect us from radiation? I hope to have that discussion later.

But what he told you about (inaudible) and other -- implied about radiation regulatory agencies, there isn't a single radiation protection or regulatory agency in the world that believes it's okay to expose people at 5,000 millirem and that there will be zero effect -- none, not a one.

ROBERT GREGER: I would like to speak for just a second.

SPEAKER: You need to make him be quiet.

JONATHON PARFREY: I would like to direct people to the literature table at the back. There's an article that was just released. It talks about background radiation contributing to thyroid cancer. So the statement to the effect that background radiation has no

health affect is an absurdity.

SPEAKER: I'd like to comment on the work by Dr. Alice Stewart, who just died, and she found that low

doses of radiation mutated the cells so they turned cancerous, whereas (inaudible) just killed the cell and then the cell regenerated.

Also, I'd like to ask Mr. Beach if there's more information available on the fuel rod failures in Building 59 and Building 10?

JOHN BEACH: I will share when you what I know afterwards.

SPEAKER: Do you have any paperwork?

JOHN BEACH: I believe I have some here.

DAN HIRSCH: I'd like to have that, also.

JOHN BEACH: It's what I sent you.

DAN HIRSCH: Oh, you mean Rocketdyne's promo piece from 1989?

JOHN BEACH: Well, that is contained and there very well be other information, but that is a source of information.

SPEAKER: John, did I hear you right? You said that the fuel rods were heated so hot that they failed in testing in Buildings 59 and 10. Did I hear that right?

JOHN BEACH: That was Sheldon's description of what

happened. But what I know is that there were fuel rod testing failures, which is what he described, in Buildings 10 and 59.

SPEAKER: Do you know what years that occurred?

JOHN BEACH: I do not.

SPEAKER: Was it in the '60s or '64?

JOHN BEACH: I'm sorry. I don't know.

SPEAKER: Okay. I'd like to see any information you have on that because that's when I worked in those buildings.

JOHN BEACH: I will share with you what I have.

SPEAKER: Thank you.

VICKI ROSEN: Yes, ma'am.

SPEAKER: I'd just like to say that I think,

because we never have enough time, can we put together a three-day symposium? Don't laugh. I don't think you live around here. But I'm tired of hearing Dan Hirsch, who we respect, being denigrated by some of the people in this room -- and Shel Plotkin. We're lucky to have these people. So let's get three days together where we don't feel rushed. We can ask our questions and come away feeling that at least --

VICKI ROSEN: You have a good point, if we could stand being around each other for that long.

SPEAKER: Who could arrange that?

VICKI ROSEN: We'll look into that.

SPEAKER: Okay. Thank you.

VICKI ROSEN: We're going to call it off now.

(Meeting concluded at 10:33 p.m.)

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STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I, CHRISTINA MORALES, Certified Shorthand Reporter, Certificate No. 12516, for the State of California, hereby certify:

I am the person that stenographically recorded the foregoing meeting;

The foregoing transcript is a true record of said meeting to the best of my ability.

Dated _____

_____

CHRISTINA MORALES
CSR No. 12516

ERRATA SHEET
February 5, 2003
SSFL Workgroup Meeting
Transcript

NAME: Steven Hsu, John Beach

LEGEND:
Reason #1: For clarification
Reason #2: Transcription error
Reason #3: Requested information
Reason #4: To further expound on my answer
Reason #5: Other (please explain)

The following are the corrections I have made to the meeting transcript:

PAGE #	LINE #	CORRECTION	REASON FOR CORRECTION
7	7	Change "side" to "site"	#2
70	8	Change "Division" to "Physicians"	#2
84	24	Change "HMO" to "HML"	#2
88	5	Change "MPDES" to "NPDES"	#2
116	18 and global	Change "TetroTech" to "Tetra Tech"	#2
135	20 and global	Change "snap" to "SNAP"	#2

Please return the completed errata sheet to:

Jennifer Lynch
Booz Allen Hamilton
101 California Street, Suite 3300
San Francisco, CA 94111
Tel: 415-263-3757/ Fax: 313-557-4719